

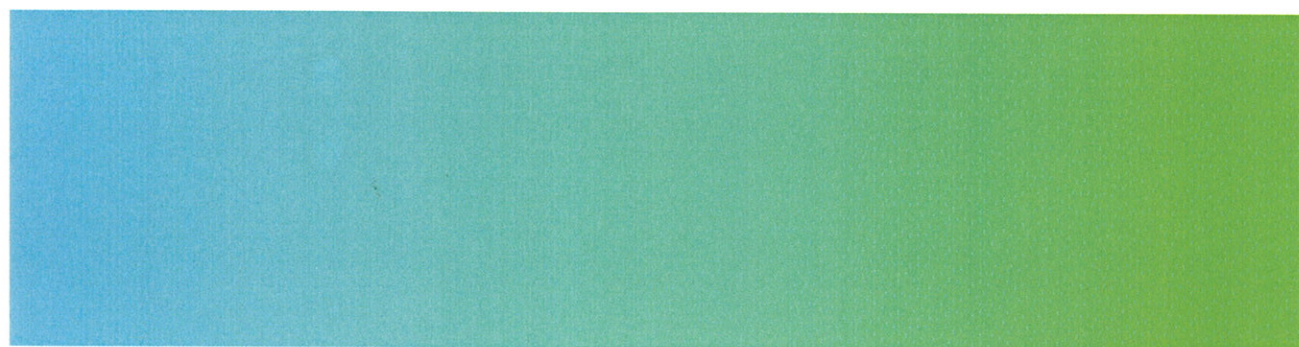
## 2010 Urban Water Management Plan



# City of Los Banos

## 2010 Urban Water Management Plan

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June 2011

### City of Los Banos

Steve Rath, City Manager  
Mark Fachin, PE, Public Works Director/City Engineer

### AECOM

Ken Swanson, PE, Project Manager  
Gary Rogers, PE, Principal-in-Charge



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| H          | City of Los Banos Water Waste Ordinance  |    |



## List of Acronyms and Abbreviations

|                     |   |
|---------------------|---|
| AB                  | Assembly Bill   |
| AF                  | acre-feet   |
| AFY                 | acre-feet per year  |
| Act                 | Urban Water Management Planning Act   |
| BMP(s)              | best management practice(s)   |
| CCID                | Central California Irrigation District  |
| CEQA                | California Environmental Quality Act  |
| cf                  | cubic feet  |
| cfs                 | cubic-feet per second   |
| CII                 | commercial, industrial, and institutional   |
| City (or Los Banos) | City of Los Banos   |
| County              | County of Merced  |
| CUWCC               | California Urban Water Conservation Council   |
| CVP                 | Central Valley Project  |
| CWC                 | California Water Code   |
| CWSRF               | Clean Water State Revolving Fund  |
| DMM(s)              | demand management measure(s)  |
| DWR                 | California Department of Water Resources  |
| EC                  | electrical conductivity   |
| ET <sub>o</sub>     | reference evapotranspiration  |
| gpcd                | gallons per capita per day  |
| gpm                 | gallons per minute  |
| Guidebook           | Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan |
| hcf                 | hundred cubic feet  |
| IRWM                | Integrated Regional Water Management  |
| IRWMP(s)            | Integrated Regional Water Management Plan(s)  |
| MCL                 | maximum contaminant level   |
| MRF                 | multi-family residential  |
| mgd                 | million gallons per day   |
| MOU                 | Memorandum of Understanding   |
| PG&E                | Pacific Gas and Electric  |
| Plan (or UWMP)      | Urban Water Management Plan   |
| RO                  | reverse osmosis   |
| SB                  | Senate Bill   |
| SCADA               | supervisory control and data acquisition  |
| SFR                 | single-family residential   |
| SWRCB               | State Water Resources Control Board   |
| SWTP                | surface water treatment plant   |
| TDS                 | total dissolved solids  |
| ULF                 | ultra-low flush   |
| ULFT                | ultra-low flush toilet  |
| UWMP (or Plan)      | Urban Water Management Plan   |
| WWTP                | wastewater treatment plant  |

# **City of Los Banos**

## **2010 Urban Water Management Plan**

### **Contact Sheet**

Date Urban Water Management Plan was adopted: June 1, 2011

Name of person submitting this Plan: Mark Fachin, Public Works Director/City Engineer

Mailing Address: City of Los Banos  
Public Works Department  
411 Madison Avenue  
Los Banos, CA 93635

Phone: (209) 827-7000

Fax: (209) 827-7010

E-mail address: [mark.fachin@losbanos.org](mailto:mark.fachin@losbanos.org)

Name of person that prepared Plan: Ken Swanson, PE

Mailing Address: AECOM  
1360 E. Spruce Avenue  
Fresno, CA 93720

Phone: (559) 448-8222

Fax: (559) 448-8233

E-mail address: [ken.swanson@aecom.com](mailto:ken.swanson@aecom.com)

The water supplier is a: Municipality

The water supplier is a: Retailer

Utility services provided by the water supplier include: Water and Wastewater Treatment

Is this agency a Bureau of Reclamation contractor? No

Is this agency a State Water Project contractor? No

## Section 1. Plan Preparation

The California Urban Water Planning Act (Act) requires urban water suppliers that have 3,000 or more service connections or supply 3,000 or more acre-feet (AF) of water per year to develop an Urban Water Management Plan (UWMP or Plan), which is submitted to the California Department of Water Resources (DWR) every five years. The Plan is required to describe and evaluate water deliveries and uses, sources of supply, reasonable and practical efficient water uses, demand management activities and water shortage contingency planning. Since 2005, legislation has been implemented that interrelates with the Act. SBX7-7 (Water Conservation Bill of 2009) requires urban water suppliers to develop baseline daily per capita water use and urban water use targets with the goal of reducing statewide per capita water use by 20 percent by 2020. Also, urban water suppliers must include projected water demands for lower income households in their future water use projections.

In accordance with California Water Code §10631.5(a), submittal of an UWMP that includes discussion of the status of the water supplier's implementation of the demand management measures (DMMs), as defined in §10631, is required in order for an urban water supplier to be eligible for a water management grant or loan administered by the DWR, State Water Resources Control Board, or the Delta Stewardship Council.

The City of Los Banos (City or Los Banos) has prepared its 2010 UWMP in accordance with the DWR "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" (Guidebook). The format of the Plan follows the suggested organization in Part 1, Section 1 of the Guidebook) and incorporates all suggested tables as numbered and shown in the Guidebook to facilitate review of the Plan by DWR. Some of the tables are not applicable to the City's Plan and are noted as such. In addition, the placement of the tables in this Plan is in accordance with the suggested format in the Guidebook and therefore there are sections in this Plan where the tables are not presented in numeric order. This document is an update of the City's 2005 UWMP.

### 1.01 Coordination

#### **Law**

*Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable (10620(d)(2)).*

*Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision (10621(b)).*

*The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan (10635(b)).*

*Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan (10642).*

*Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area (10642).*

City Public Works Department staff coordinated the development of this Plan with various City departments, including solicitation of input and data from the various departments during the preparation of this Plan. Draft copies of the Plan were made available to department managers for comment and revision prior to adoption.

The City of Los Banos water supply is produced solely from groundwater. The City does not currently share water sources with other agencies other than indirectly through precipitation recharge and pumping from the same groundwater basin. Agencies coordinated with for development of this Plan therefore include, but are not limited to, local government, private, and agricultural interests as shown in Table 1.

| <b>Table 1. Coordination with Appropriate Agencies</b>   |  |                                    |                                 |                                     |  |  |                                      |
|--|--|------------------------------------|---------------------------------|-------------------------------------|--|--|--------------------------------------|
| <b>Coordinating Agencies</b>   | <b>Participated in developing the Plan</b> | <b>Commented on the draft Plan</b> | <b>Attended public meetings</b> | <b>Was contacted for assistance</b> | <b>Was sent a copy of the draft Plan<sup>1</sup></b> | <b>Was sent a notice of intention to adopt<sup>1</sup></b> | <b>Not involved / No information</b> |
| Central California Irrigation District   |  | ✓                                  |                                 |                                     | ✓  | ✓  |                                      |
| County of Merced   |  |                                    |                                 |                                     | ✓  | ✓  |                                      |
| Merced County Farm Bureau  |  |                                    |                                 |                                     | ✓  | ✓  |                                      |
| Los Banos Chamber of Commerce  |  |                                    |                                 |                                     | ✓  | ✓  |                                      |
| Los Banos Unified School District  |  |                                    |                                 |                                     | ✓  | ✓  |                                      |
| General public   |  |                                    | ✓                               |                                     | ✓  | ✓  |                                      |
| <sup>1</sup> Notification of the City's intention to adopt a revised UWMP and the availability of the draft UWMP was provided to the listed agencies by letter and to the general public through the public hearing notice published in the local newspaper. |  |                                    |                                 |                                     |  |  |                                      |

The City held a public hearing on June 1, 2011 to present and discuss the Plan. Public involvement of the entire community was encouraged. Sixty days prior to the public hearing, notice of the time and place of hearing was published pursuant to Section 6066 of the Government Code. A copy of the public notice is included in Appendix A. The notice of the time and place of the hearing and the availability of the draft UWMP was also provided by letter to the agencies listed in Table 1. Prior to the public hearing and adoption of the Plan, the City made the draft Plan available for public inspection on its website and at the City Public Works Department.

## 1.02 Plan Adoption, Submittal, and Implementation

### **Law**

*The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640) (10621(c)).*

*After the hearing, the plan shall be adopted as prepared or as modified after the hearing (10642).*

*An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan (10643).*

*An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the*



*California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption (10644(a)).*

*Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours. (10645).*

The Plan was adopted by the City Council on June 1, 2011 and submitted to DWR, the California State Library and the County of Merced within 30 days after adoption. A copy of the signed resolution adopting the Plan is included as Appendix B. This Plan includes all information necessary to meet the requirements of the Act and the Water Conservation Bill of 2009. The adopted Plan was also made available for public review on the City's website and at the City's Public Works Department within 30 days after adoption. The implementation of the Plan is discussed in further detail in the following sections of the Plan.

## Section 2. System Description

Los Banos extracts its water supply from groundwater aquifers via a series of wells with most of the wells concentrated in the southwest area of the City. The City's existing system facilities include 13 active wells with a total pumping capacity of 14,875 gallons per minute (gpm), a distribution system with line sizes ranging from 4 to 30 inches in diameter, an elevated storage tank with a capacity of 100,000 gallons, and a 5 million gallon surface mounted storage tank equipped with 4 booster pumps with a total pumping capacity of 10,500 gpm. The quality of the water pumped is good and meets all California Code of Regulations primary and secondary drinking water standards.

### 2.01 Service Area Physical Description

#### **Law**

*Describe the service area of the supplier (10631(a)).*

Los Banos is located on the west side of Merced County and is the county's second largest city. The City is conveniently located in the center of California and is about two hours from the cities of San Francisco, Oakland and Sacramento, as well as Yosemite National Park. California's Monterey Peninsula and the Pacific Ocean are accessible in one and a half hours, as well as the Valley's major cities of Stockton and Fresno. The Silicon Valley is just more than an hour's drive away.

Incorporation of the City occurred in 1907. The City provides water service to all residential, commercial, and industrial customers, and for environmental and fire protection uses. The City currently occupies an area of about 9 square miles.

Los Banos has a generally flat topography and lies within the San Joaquin Valley, which is about 225 miles long and averages 50 miles wide. About 50 miles east of Los Banos, the terrain slopes upward with the foothills of the Sierra Nevada mountain range; 10 miles west of the City are the foothills of the Coastal Mountain Range. Los Banos is also centrally located along the western edge of nearly 160,000 acres of the remaining seasonal wetlands and grasslands that at one time covered much of the San Joaquin Valley. This area is very important in that it represents the largest remaining area of wetlands and grasslands in the Central Valley which is critical habitat for migrating and wintering waterfowl on the Pacific Flyway.

### 2.02 Climate

#### **Law**

*Describe the service area climate (10631(a)).*

The climate of Los Banos is dry and mild in winter and hot in the summer. Nearly nine-tenths of the annual precipitation falls during the period of November through April. Rainfall during the summer is rare and very light. Snow is also a rare occurrence. Los Banos enjoys a very high percentage of sunshine, receiving more than 80 percent of the possible amount during all but the four months of November, December, January, and February. Reduction of sunshine during these months is caused by fog and short periods of stormy weather.

Due to clear skies during the summer and the protection of the San Joaquin Valley from marine effects, the normal daily maximum temperature reaches the high 90s during the latter part of July. The daily maximum temperature during the warmest month has ranged from 76°F to 115°F. Relative humidity readings of 15 percent are common on summer afternoons, and readings as low as 8 percent have been recorded. In contrast to this, humidity readings average 90 percent during the morning hours of December and January.

Winter temperatures are usually mild with infrequent cold spells dropping the readings below freezing. Heavy frost occurs almost every year, and the first frost usually occurs during the last week of November. The last frost in spring is usually in early March; however, one year in five will have the last frost after the first of April.

Winds flow with the major axis of the San Joaquin Valley, generally from the northwest. This feature is especially beneficial since during the warmest months, the northwest winds increase during the evenings. These refreshing breezes and the normally large temperature variation of about 35 degrees between the highest and lowest readings generally result in comfortable evening and night temperatures.

Average monthly and annual climate data for Los Banos is presented below.

| Climate Data                                 |      |      |      |      |      |      |      |      |      |      |      |      |        |
|--|------|------|------|------|------|------|------|------|------|------|------|------|--------|
|  | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Annual |
| Standard monthly avg. ETo <sup>1</sup> (in.) | 0.87 | 1.67 | 3.40 | 5.54 | 7.29 | 8.21 | 8.62 | 7.44 | 5.52 | 3.77 | 1.82 | 0.93 | 55.08  |
| Avg. rainfall <sup>2</sup> (in.)             | 1.90 | 1.68 | 1.41 | 0.71 | 0.35 | 0.06 | 0.02 | 0.02 | 0.18 | 0.48 | 0.97 | 1.47 | 9.24   |
| Avg. max. temp. <sup>2</sup> (°F)            | 55.1 | 62.2 | 68.2 | 74.9 | 82.5 | 89.9 | 96.5 | 95.1 | 90.4 | 80.2 | 66.6 | 55.8 | 76.4   |
| Avg. min. temp. <sup>2</sup> (°F)            | 36.3 | 39.8 | 42.7 | 46.2 | 51.8 | 56.7 | 60.5 | 59.2 | 56.1 | 49.3 | 41.1 | 36.4 | 48.0   |

<sup>1</sup> California Irrigation Management Information System (CIMIS) data for Station 56 – Los Banos.

<sup>2</sup> Western Regional Climate Center monthly climate summary data for Los Banos, CA (Station 045118). Period of record: 3/1/1906 – 12/31/2010.

## 2.03 Service Area Population

### Law

*(Describe the service area) current and projected population . . . The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier . . . (10631(a)).*

*...(population projections) shall be in five-year increments to 20 years or as far as data is available (10631(a)).*

*Describe ... other demographic factors affecting the supplier's water management planning (10631(a)).*

Los Banos has historically experienced steady population growth and future projections anticipate further growth at the same or greater than the current rate. Agricultural services, retail trade, and government are currently the largest segments contributing to the City's labor force. A growing new enterprise segment is also creating additional demand on water resources. Anticipating increased demand from population growth and new enterprise are important aspects of the City's UWMP. The City's UWMP anticipates the affects of increased demand on water resources arising from sustained population growth.

The latest U.S. Census Bureau population estimate for the incorporated City of Los Banos was 35,972 in 2010. The City's current General Plan, adopted in 2009, assumes an average annual population growth rate of 4.1 percent. Table 2 shows the estimated population total for the City in 2010, with projections to 2035 based on an assumed annual growth rate of 4.1 percent.

| Table 2. Population – Current and Projected |        |        |        |        |        |        |                  |
|---|--------|--------|--------|--------|--------|--------|------------------|
|   | 2010   | 2015   | 2020   | 2025   | 2030   | 2035   | Data source      |
| Service area population                     | 35,972 | 43,976 | 53,762 | 65,724 | 80,349 | 98,227 | U.S. Census 2010 |

## Section 3. System Demands

### 3.01 Baselines and Targets

#### *Law*

*An urban retail water supplier shall include in its urban water management plan ... due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the basis for determining those estimates, including references to supporting data (10608.20(e)).*

As part of the 20x2020 Water Conservation Plan, a directive was issued to reduce statewide per capita urban water use by 20 percent by the year 2020. The Water Conservation Bill of 2009 is one of the policy bills that provides the regulatory framework to support the statewide reduction. With the incorporation of the Water Conservation Bill of 2009 into the California Water Code it is now necessary for urban water suppliers to develop baseline daily per capita water use and urban water use targets and to track their progress toward achieving those targets.

DWR developed the “Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use” Report (Methodologies Report) to provide methodologies to develop baseline and compliance numbers. The development process outlined in Figure D-2 of the Methodologies Report was used to develop the City’s baseline and target numbers. A description of the steps and process used to determine the baseline and target numbers follows:

#### Step 1: Determine the Base Daily Per Capita Water Use

- Los Banos does not use any recycled water to meet any of its water demand, therefore use of a 10-year base period was required. The base period used was 1999 through 2008 (see Table 13).
- Los Banos determined the population within their water system service area for each year in the base period. Population data from the California Department of Finance Demographic Research Unit for the incorporated City of Los Banos was used. The water system service area coincides with the incorporated area boundaries of the City and therefore no adjustments to the population numbers were necessary (see Table 13).
- Gross water use, in acre-feet per year (AFY) was summarized for each base period year based on the total of customer meter readings (sold water) adjusted for system losses (unaccounted for water) as presented in Tables 10 and 11 and discussed in Section 6.03 (see Table 14).
- Annual daily per capita water use numbers were developed for each year in the base period. The average of the annual daily per capita water use numbers was calculated and the resultant is the **Base Daily Per Capita Water Use (233 gallons per capita per day (gpcd))**(see Table 14).

#### Step 2: Determine the Urban Water Use Target

- The Urban Water Use Target is the annual average daily per capita water use value that the City is required to be in compliance with by 2020 to be eligible for funding administered by the State. Method 1 (Eighty percent of the supplier’s Base Daily Per Capita Water Use) was used to develop the Urban Water Use Target. Method 1 requires multiplying the Base Daily Per Capita Water Use (233 gpcd) by 80% to determine the **Urban Water Use Target (186 gpcd)**.

#### Step 3: Confirm the Urban Water Use Target

- Step 3 confirms the water supplier’s urban water use target determined in Step 2. It compares the urban water use target determined in Step 2 to a 5-year base daily per capita water use value to



confirm that the urban water use target has met a minimum reduction established by statute. Adjustments are made, if necessary, so that the threshold is met. The 5-year base period used to confirm the Urban Water Use Target was 2004 through 2008 (see Table 13).

- The already determined population and gross water use numbers in Table 14 were applied to the 5-year base period to determine the annual daily per capita water use numbers, the average **5-Year Base Daily Per Capita Water Use (233 gpcd)** and the **95% of 5-Year Base Daily Per Capita Water Use (221 gpcd)** (see Table 15).
- The Urban Water Use Target (186 gpcd) was determined to be lower than the 95% of 5-Year Base Daily Per Capita Water Use (221 gpcd) and therefore no adjustment was required. The **Urban Water Use Target remains (186 gpcd)**.

#### Step 4: Determine the Interim Urban Water Use Target

- The final step was determination of the Interim Urban Water Use Target, which is the annual average daily per capita water use value that the City is required to be in compliance with by 2015 to be eligible for funding administered by the State. The Interim Urban Water Use Target was determined by adding the Base Daily Per Capita Water Use number (233 gpcd) and the Urban Water Use Target number (186 gpcd) and dividing by two. The calculated **Interim Urban Water Use Target is 210 gpcd**.

| Table 13. Base Period Ranges |  |       |         |
|------------------------------|--|-------|---------|
| Base                         | Parameter  | Value | Units   |
| 10- to 15-year base period   | 2008 total water deliveries                          | 9,200 | AFY     |
|                              | 2008 total volume of delivered recycled water        | 0     | AFY     |
|                              | 2008 recycled water as a percent of total deliveries | 0     | percent |
|                              | Number of years in base period                       | 10    | years   |
|                              | Year beginning base period range                     | 1999  |         |
|                              | Year ending base period range                        | 2008  |         |
| 5-year base period           | Number of years in base period                       | 5     | years   |
|                              | Year beginning base period range                     | 2004  |         |
|                              | Year ending base period range                        | 2008  |         |

| Table 14. Base Daily Per-Capita Water Use — 10- to 15-Year Range |               |                                   |                                       |  |
|--|---------------|-----------------------------------|---------------------------------------|--|
| Base period year   |               | Distribution<br>System Population | Daily system gross<br>water use (mgd) | Annual daily per<br>capita water use<br>(gpcd) |
| Sequence Year  | Calendar Year |                                   |                                       |  |
| Year 1   | 1999          | 24,069                            | 5.461                                 | 227  |
| Year 2   | 2000          | 25,869                            | 6.710                                 | 259  |
| Year 3   | 2001          | 27,394                            | 6.252                                 | 228  |
| Year 4   | 2002          | 28,443                            | 6.745                                 | 237  |
| Year 5   | 2003          | 29,413                            | 6.280                                 | 214  |
| Year 6   | 2004          | 30,882                            | 6.554                                 | 212  |
| Year 7   | 2005          | 32,336                            | 6.782                                 | 210  |
| Year 8   | 2006          | 33,977                            | 7.921                                 | 233  |
| Year 9   | 2007          | 34,988                            | 9.220                                 | 264  |
| Year 10  | 2008          | 35,665                            | 8.720                                 | 244  |
| Year 11  |               |                                   |                                       |  |
| Year 12  |               |                                   |                                       |  |
| Year 13  |               |                                   |                                       |  |
| Year 14  |               |                                   |                                       |  |
| Year 15  |               |                                   |                                       |  |
| <b>Base Daily Per Capita Water Use</b>                           |               |                                   |                                       | <b>233</b>                                     |

| Table 15. Base Daily Per-Capita Water Use — 5-Year Range |               |                                   |                                       |  |
|--|---------------|-----------------------------------|---------------------------------------|--|
| Base period year   |               | Distribution<br>System Population | Daily system gross<br>water use (mgd) | Annual daily per<br>capita water use<br>(gpcd) |
| Sequence Year  | Calendar Year |                                   |                                       |  |
| Year 1   | 2004          | 30,882                            | 6.554                                 | 212  |
| Year 2   | 2005          | 32,336                            | 6.782                                 | 210  |
| Year 3   | 2006          | 33,977                            | 7.921                                 | 233  |
| Year 4   | 2007          | 34,988                            | 9.220                                 | 264  |
| Year 5   | 2008          | 35,665                            | 8.720                                 | 244  |
| <b>Base Daily Per Capita Water Use</b>                   |               |                                   |                                       | <b>233</b>                                     |

### Summary of Baselines and Targets

A summary of the City's baselines and targets determined in this section is presented below. The City's per capita water use has been less than its 2015 Interim Urban Water Use Target of 210 gpcd the last two years. The City also nearly achieved its 2020 Urban Water Use Target of 186 gpcd the last two years. A discussion of the City's plan to reduce water use with the goal of achieving and maintaining compliance with its 2020 Urban Water Use Target is presented in Section 3.04. As noted in the Guidebook, a water supplier may select a different Target Method in its 2015 Plan. Therefore the method selected and the determination of targets will be reevaluated during the preparation of the City's 2015 Plan.

| Summary of Baselines and Targets      |          |
|---------------------------------------|----------|
| Base Daily Per-Capita Water Use       | 233 gpcd |
| Interim Urban Water Use Target (2015) | 210 gpcd |
| Urban Water Use Target (2020)         | 186 gpcd |

## 3.02 Water Demands

### Law

*Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; (I) Agricultural (10631(e)(1) and (2)).*

*The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier (10631.1(a)).*

Projected water demands are based on the population estimates shown in Section 2.03 and assume that water use targets developed in Section 3.01 will be achieved in both 2015 and 2020. The number of accounts in each water use sector is assumed to grow at the same rate as the population (4.1% annually) over the planning period. The water delivery projections are based on 2010 data adjusted by the assumed 4.1% growth rate through 2015. When unaccounted for water (system losses) are included, this yields a per capita water use of 187 gpcd in 2015, same as in 2010, which is less than the Interim Urban Water Use Target for 2015 of 221 gpcd. It is assumed that per capita water use would decline slightly to 186 gpcd by 2020 which would achieve the goal of complying with the Urban Water Use Target of 186 gpcd.

The amount of water delivered in 2005 and 2010, based on customer meter readings, along with the projected amounts to be delivered over the next 25 years, in 5-year increments, is shown in Tables 3 through 7.

| <b>Table 3. Water Deliveries — Actual, 2005 (AFY)</b>  |                      |               |                      |               |               |
|--|----------------------|---------------|----------------------|---------------|---------------|
| <b>Water use sectors</b>   | <b>2005</b>          |               |                      |               |               |
|  | <b>Metered</b>       |               | <b>Not metered</b>   |               | <b>Total</b>  |
|  | <b># of accounts</b> | <b>Volume</b> | <b># of accounts</b> | <b>Volume</b> | <b>Volume</b> |
| Single family  | 9,907                | 5,724         |                      |               | 5,724         |
| Multi-family   |                      |               |                      |               |               |
| Commercial <sup>1</sup>  | 591                  | 1,244         | 30                   | NA            | 1,244         |
| Industrial   |                      |               |                      |               | 0             |
| Institutional/governmental   |                      |               |                      |               | 0             |
| Landscape  |                      |               |                      |               | 0             |
| Agriculture  |                      |               |                      |               | 0             |
| Other (construction)   |                      |               |                      |               | 0             |
| <b>Total</b>   | <b>10,498</b>        | <b>6,968</b>  | <b>30</b>            | <b>NA</b>     | <b>6,968</b>  |
| <sup>1</sup> Commercial includes all other water use sectors except single family. Accounts were subsequently separated by water use sector as shown in Table 4. |                      |               |                      |               |               |

| Table 4. Water Deliveries — Actual, 2010 (AFY)                  |               |        |               |        |        |
|---|---------------|--------|---------------|--------|--------|
|   | 2010          |        |               |        |        |
|   | Metered       |        | Not metered   |        | Total  |
| Water use sectors   | # of accounts | Volume | # of accounts | Volume | Volume |
| Single family   | 10,168        | 4,843  |               |        | 4,843  |
| Multi-family  | 533           | 411    |               |        | 411    |
| Commercial <sup>1</sup>   | 81            | 1,177  |               |        | 1,177  |
| Industrial  |               |        |               |        |        |
| Institutional/governmental                                      |               |        |               |        |        |
| Landscape   | 180           | 497    |               |        | 497    |
| Agriculture   |               |        |               |        |        |
| Other (construction)  |               |        |               |        |        |
| Total   | 10,962        | 6,928  |               |        | 6,928  |
| <sup>1</sup> Includes industrial and institutional/governmental |               |        |               |        |        |

| Table 5. Water Deliveries — Projected, 2015 (AFY)               |               |        |               |        |        |
|---|---------------|--------|---------------|--------|--------|
|   | 2015          |        |               |        |        |
|   | Metered       |        | Not metered   |        | Total  |
| Water use sectors   | # of accounts | Volume | # of accounts | Volume | Volume |
| Single family   | 12,431        | 5,921  |               |        | 5,921  |
| Multi-family  | 652           | 502    |               |        | 502    |
| Commercial <sup>1</sup>   | 99            | 1,439  |               |        | 1,439  |
| Industrial  |               |        |               |        |        |
| Institutional/governmental                                      |               |        |               |        |        |
| Landscape   | 220           | 608    |               |        | 608    |
| Agriculture   |               |        |               |        |        |
| Other   |               |        |               |        |        |
| Total   | 13,402        | 8,470  |               |        | 8,470  |
| <sup>1</sup> Includes industrial and institutional/governmental |               |        |               |        |        |

| Table 6. Water Deliveries — Projected, 2020 (AFY)               |               |        |               |        |        |
|---|---------------|--------|---------------|--------|--------|
|   | 2020          |        |               |        |        |
|   | Metered       |        | Not metered   |        | Total  |
| Water use sectors   | # of accounts | Volume | # of accounts | Volume | Volume |
| Single family   | 15,196        | 7,215  |               |        | 7,215  |
| Multi-family  | 797           | 612    |               |        | 612    |
| Commercial <sup>1</sup>   | 121           | 1,753  |               |        | 1,753  |
| Industrial  |               |        |               |        |        |
| Institutional/governmental                                      |               |        |               |        |        |
| Landscape   | 269           | 741    |               |        | 741    |
| Agriculture   |               |        |               |        |        |
| Other   |               |        |               |        |        |
| Total   | 16,383        | 10,321 |               |        | 10,321 |
| <sup>1</sup> Includes industrial and institutional/governmental |               |        |               |        |        |



| <b>Table 7. Water Deliveries — Projected 2025, 2030, and 2035 (AFY)</b> |                      |               |                      |               |                      |               |
|---|----------------------|---------------|----------------------|---------------|----------------------|---------------|
|   | <b>2025</b>          |               | <b>2030</b>          |               | <b>2035</b>          |               |
|   | <b>Metered</b>       |               | <b>metered</b>       |               | <b>metered</b>       |               |
| <b>Water use sectors</b>  | <b># of accounts</b> | <b>Volume</b> | <b># of accounts</b> | <b>Volume</b> | <b># of accounts</b> | <b>Volume</b> |
| Single family   | 18,578               | 8,820         | 22,712               | 10,783        | 27,765               | 13,182        |
| Multi-family  | 974                  | 748           | 1,191                | 915           | 1,455                | 1,118         |
| Commercial <sup>1</sup>   | 148                  | 2,143         | 181                  | 2,620         | 221                  | 3,203         |
| Industrial  |                      |               |                      |               |                      |               |
| Institutional/governmental  |                      |               |                      |               |                      |               |
| Landscape   | 329                  | 906           | 402                  | 1,107         | 492                  | 1,354         |
| Agriculture   |                      |               |                      |               |                      |               |
| Other   |                      |               |                      |               |                      |               |
| <b>Total</b>  | <b>20,029</b>        | <b>12,617</b> | <b>24,486</b>        | <b>15,425</b> | <b>29,933</b>        | <b>18,857</b> |
| <sup>1</sup> Includes industrial and institutional/governmental         |                      |               |                      |               |                      |               |

Urban water suppliers are required to identify water demand required for lower income housing in its water use projections. The City of Los Banos 2009 – 2014 Housing Element estimated a need for 525 very low income housing units and 403 low income units for a total of 928 lower income housing units needed by 2015. Of the 525 very low income housing units needed, 352 of those units are needed for extremely low income families. The extremely low income families require rental assistance and these units are assumed to be multi-family residential (MFR) units. Therefore, the number of low income single-family residential (SFR) units is assumed to be the remaining 576 units. Based on these residential unit numbers, 2010 water use per residential unit values and an annual growth rate of 4.1 percent, the estimated volume of water needed to meet the new lower income housing units were determined and are shown in Table 8. The projected water demands for lower income housing are included in the projections of water demands shown in Tables 5 through 7. Demand for existing lower income housing is being met and is included in the volumes shown in Tables 3 and 4.

| <b>Table 8. Low-Income Projected Water Demands (AFY)</b>  |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|
| <b>Low Income Water Demands</b>   | <b>2015</b> | <b>2020</b> | <b>2025</b> | <b>2030</b> | <b>2035</b> |
| Single-family residential <sup>1</sup>  | 276         | 337         | 412         | 504         | 616         |
| Multi-family residential <sup>2</sup>   | 134         | 164         | 200         | 245         | 299         |
| <b>Total</b>  | <b>410</b>  | <b>501</b>  | <b>612</b>  | <b>749</b>  | <b>915</b>  |
| <sup>1</sup> Based on an average water use of 0.48 AF per SFR unit in 2010 and an annual growth rate of 4.1%. |             |             |             |             |             |
| <sup>2</sup> Based on an average water use of 0.38 AF per MFR unit in 2010 and an annual growth rate of 4.1%. |             |             |             |             |             |

Los Banos does not sell water to other water agencies nor are there plans to as shown in Table 9. In addition, water is not used for any other purposes as shown in Table 10. However, the volume of water produced by the City wells, measured at the wellhead, is greater than the delivered volume due to unaccounted for water (system losses). The system losses are shown in Table 10. Unaccounted for water is further discussed in Section 6.03. Therefore, the City's total annual water use from 2005 to 2035, in five year increments, is shown in Table 11. These total water use numbers include the delivered volume, as measured at the customer's meters, and system loss volume and are equal to the total of the pumpage volumes measured at the wellheads.

| Table 9. Sales To Other Water Agencies (AFY) <sup>1</sup> |      |      |      |      |      |      |      |
|---|------|------|------|------|------|------|------|
| Water distributed   | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
| None  |      |      |      |      |      |      |      |
|   |      |      |      |      |      |      |      |
|   |      |      |      |      |      |      |      |
| Total   |      |      |      |      |      |      |      |

<sup>1</sup>Los Banos does not sell water to any water agencies.

| Table 10. Additional Water Uses And Losses (AFY) <sup>1</sup> |      |      |      |      |       |       |       |
|---|------|------|------|------|-------|-------|-------|
| Water Use <sup>2</sup>  | 2005 | 2010 | 2015 | 2020 | 2025  | 2030  | 2035  |
| Saline barriers   |      |      |      |      |       |       |       |
| Groundwater recharge  |      |      |      |      |       |       |       |
| Conjunctive use   |      |      |      |      |       |       |       |
| Raw water   |      |      |      |      |       |       |       |
| Recycled water  |      |      |      |      |       |       |       |
| System losses   | 629  | 663  | 719  | 880  | 1,076 | 1,315 | 1,608 |
| Other (define)  |      |      |      |      |       |       |       |
| Total   | 629  | 663  | 719  | 880  | 1,076 | 1,315 | 1,608 |

<sup>1</sup>Los Banos does not use water for other purposes but does have system losses. Unaccounted for water volume is assumed to be 8.5% of the water pumped into the system (See Section 6.03).  
<sup>2</sup>Water accounted for in Tables 3 through 7 is not included in this table.

| Table 11. Total Water Use (AFY)                  |       |       |       |        |        |        |        |
|--|-------|-------|-------|--------|--------|--------|--------|
| Water Use  | 2005  | 2010  | 2015  | 2020   | 2025   | 2030   | 2035   |
| Total water deliveries (from Tables 3 to 7)      | 6,968 | 6,928 | 8,470 | 10,321 | 12,617 | 15,425 | 18,857 |
| Sales to other water agencies (from Table 9)     |       |       |       |        |        |        |        |
| Additional water uses and losses (from Table 10) | 629   | 663   | 719   | 880    | 1,076  | 1,315  | 1,608  |
| Total  | 7,597 | 7,591 | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |

### 3.03 Water Demand Projections

#### Law

*Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c) (10631(k)).*

Los Banos does not purchase or rely on water from another agency as shown in Table 12.

| Table 12. Retail Agency Demand Projections Provided To Wholesale Suppliers (AFY) <sup>1</sup> |                   |      |      |      |      |      |      |
|---|-------------------|------|------|------|------|------|------|
| Wholesaler  | Contracted Volume | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
| None  |                   |      |      |      |      |      |      |
|   |                   |      |      |      |      |      |      |
|   |                   |      |      |      |      |      |      |

<sup>1</sup>Los Banos does not purchase any water from another agency.

### 3.04 Water Use Reduction Plan

#### Law

*Urban wholesale water suppliers shall include in the urban water management plans . . . an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part. (10608.36).*

The City is currently using less water than its Interim Urban Water Use Target of 210 gpcd. The City's water use the last two years has been 197 gpcd in 2009 and 187 gpcd in 2010. In fact, water use the last two years is almost in compliance with the Urban Water Use Target of 186 gpcd as shown below.

| Status of Compliance with Urban Water Use Targets |                            |
|---|----------------------------|
|   | Water Use or Target (gpcd) |
| 2009 water use                                    | 197                        |
| 2010 water use                                    | 187                        |
| Base Daily Per-Capita Water Use                   | 233                        |
| Interim Urban Water Use Target (2015)             | 210                        |
| Urban Water Use Target (2020)                     | 186                        |

Since preparation of its 2005 UWMP, the City has made continued progress in implementing its water conservation programs and the DMMs identified in the Plan. Since 2005, the City has completed the installation of meters and now all connections are metered and billed on a volumetric basis. In addition, the City Council adopted a Water Efficient Landscape Ordinance that establishes a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitation projects. This is discussed further in Section 6.05. The City's continued efforts in educating its residents about the importance of conserving and protecting its limited water resources is also contributing to the successful reduction in water use. The City will continue to implement its water conservation programs and the DMMs in this Plan with the goal of achieving compliance with its Urban Water Use Target of 186 gpcd.

## Section 4. System Supplies

### 4.01 Water Sources

**Law**

*Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a) (10631(b)).*

Los Banos obtains its entire water supply from the underlying groundwater basin. The volume of groundwater pumped in 2010 and estimates of groundwater volumes required to meet demands through 2035, in five-year increments, are shown in Table 16. The City does not obtain any water from a wholesaler nor does it wholesale water to other suppliers or users as shown in Table 17.

| Table 16. Water Supplies — Current And Projected (AFY) |                                     |       |       |        |        |        |        |
|--|-------------------------------------|-------|-------|--------|--------|--------|--------|
| Water Supply Sources                                   |                                     | 2010  | 2015  | 2020   | 2025   | 2030   | 2035   |
| Water purchased from:                                  | Wholesaler supplied volume (yes/no) |       |       |        |        |        |        |
| Wholesaler 1   |                                     |       |       |        |        |        |        |
| Wholesaler 2   |                                     |       |       |        |        |        |        |
| Wholesaler 3   |                                     |       |       |        |        |        |        |
| Supplier-produced groundwater                          |                                     | 7,591 | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
| Supplier-produced surface water                        |                                     |       |       |        |        |        |        |
| Transfers in   |                                     |       |       |        |        |        |        |
| Exchanges In   |                                     |       |       |        |        |        |        |
| Recycled Water   |                                     |       |       |        |        |        |        |
| Desalinated Water                                      |                                     |       |       |        |        |        |        |
| Other  |                                     |       |       |        |        |        |        |
| Other  |                                     |       |       |        |        |        |        |
| Total  |                                     | 7,591 | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |

| Table 17. Wholesale Supplies — Existing and Planned Sources of Water (AFY) |                   |      |      |      |      |      |
|--|-------------------|------|------|------|------|------|
| Wholesale Sources  | Contracted Volume | 2015 | 2020 | 2025 | 2030 | 2035 |
| None   |                   |      |      |      |      |      |
|  |                   |      |      |      |      |      |

### 4.02 Groundwater

**Law**

*(Is) groundwater ... identified as an existing or planned source of water available to the supplier . . . (10631(b))?*

*(Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management (10631(b)(1)).*

*(Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater (10631(b)(2)).*



*For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board (10631(b)(2)).*

*(Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree (10631(b)(2)).*

*For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition (10631(b)(2)).*

*(Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records (10631(b)(3)).*

*(Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records (10631(b)(4)).*

Los Banos is located in the San Joaquin River Hydrologic Region (groundwater basin) and extracts its groundwater from the Delta-Mendota Subbasin. DWR Bulletin 118 – Update 2003, “California’s Groundwater” contains a detailed description of the Delta-Mendota Subbasin and its characteristics and conditions. A copy of this description is included in Appendix C.

The San Joaquin River Groundwater Basin is not adjudicated. Therefore, there are no limitations placed on groundwater pumpage volumes but the groundwater must be beneficially used. While portions of the San Joaquin River Groundwater Basin has been in a state of overdraft for many years, Delta-Mendota Subbasin water levels have remained relatively stable and actually rose during the 1970 to 2000 period (DWR Bulletin 118). The California Water Plan Update – Bulletin 160-98 estimated the average overdraft in the San Joaquin River Groundwater Basin to be 239,000 AF in 1995. However, the Delta-Mendota Subbasin average water level increased by 2.2 feet from 1970 to 2000. The period from 1970 to 1985 showed a general increase, topping out at 7.5 feet above the 1970 water level. The 9-year period from 1985 to 1994 saw general declines in water levels, dropping back down to the 1970 groundwater level in 1994. Groundwater levels rose in 1995 to about 2.2 feet above the 1970 groundwater level. Water levels fluctuated around this value until 2000. Subbasin water levels have shown the ability to recover from periods of reduced rainfall and reduced surface water deliveries.

The City of Los Banos has not prepared a Groundwater Management Plan. However, the City works closely with the other local water suppliers to monitor and manage groundwater in the area. A report that investigated groundwater conditions in the Los Banos area was recently prepared for the Central California Irrigation District, City of Los Banos and the United States Bureau of Reclamation. The report, “Update of Groundwater Conditions in the Vicinity of the City of Los Banos” (Kenneth D. Schmidt and Associates, May 2010), concludes that the groundwater in the study area (Los Banos area) has been approximately in balance from 1989 to 2009. The report also concludes that although the Los Banos urban area is not in a long-term state of groundwater overdraft, much of the recharge to groundwater beneath the City is not from City activities. Seepage from canals, deep percolation from irrigated lands, and seepage from Los Banos Creek have been the most important sources of groundwater recharge in the area. The report states “About 3,600 AFY of canal water (surface water) would need to be used or recharged by the City to have a self-sufficient groundwater supply at present. Use or recharge of about 5,400 AFY of surface water would be necessary for full development within the City’s Urban Growth Boundary as planned.”

The annual volume of groundwater pumped each of the last five years and projected to be pumped through 2035, in five-year increments, is shown in Tables 18 and 19. Groundwater pumpage estimates also assume that the City will continue to rely solely on groundwater for its supply since it currently has no surface water supplies or entitlements although this may change as the City is investigating acquisition of a surface water

supply due to the limited availability of groundwater meeting Domestic Water Quality Standards. This pursuit is in its infancy hence there is not yet a projection available as to when the conversion to or supplementation with surface water may occur. Therefore, use of groundwater is assumed throughout the period of projections.

| <b>Table 18. Groundwater – Volume Pumped (AFY)</b> |                             |             |             |             |             |             |
|--|-----------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Basin Name(s)</b>                               | <b>Metered or Unmetered</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> |
| Delta-Mendota Subbasin                             | Metered                     | 8,107       | 9,119       | 8,849       | 8,254       | 7,590       |
| Total groundwater pumped                           |                             | 8,107       | 9,119       | 8,849       | 8,254       | 7,590       |
| Groundwater as a percent of total water supply     |                             | 100         | 100         | 100         | 100         | 100         |

| <b>Table 19. Groundwater – Volume Projected to be Pumped (AFY)</b> |             |             |             |             |             |
|--|-------------|-------------|-------------|-------------|-------------|
| <b>Basin Name(s)</b>   | <b>2015</b> | <b>2020</b> | <b>2025</b> | <b>2030</b> | <b>2035</b> |
| Delta-Mendota Subbasin   | 9,189       | 11,201      | 13,693      | 16,740      | 20,465      |
| Total groundwater pumped   | 9,189       | 11,201      | 13,693      | 16,740      | 20,465      |
| Groundwater as a percent of total water supply                     | 100         | 100         | 100         | 100         | 100         |

#### 4.03 Transfer Opportunities

##### **Law**

*Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis (10631(d)).*

The municipal water well system that supplies the City's water has historically been a consistent, reliable source of water and therefore the City has not had to exchange or transfer water to meet its demands. In the event that untreated groundwater can no longer provide a consistent potable water source, new wells, well head treatment and a treated surface water supply will be used as needed to avoid a supply shortfall. The purchase and delivery of any surface water supplies to the City may first be used for groundwater recharge or for nonpotable uses since the City presently does not have a surface water treatment plant (SWTP). It would not be practical to use surface water on a short-term or emergency basis. These water source options are being evaluated for their use in meeting future water demands, and the City is exploring the procurement of a surface water supply through various arrangements. However, at this time there are no plans for transferring or exchanging water as shown in Table 20.

| <b>Table 20. Transfer and Exchange Opportunities (AFY)</b> |                             |                                |                        |
|--|-----------------------------|--------------------------------|------------------------|
| <b>Transfer Agency</b>                                     | <b>Transfer or Exchange</b> | <b>Short Term or Long Term</b> | <b>Proposed Volume</b> |
| None   |                             |                                |                        |
|  |                             |                                |                        |
| Total  |                             |                                |                        |

#### 4.04 Desalinated Water Opportunities

##### **Law**

*Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply (10631(i)).*

Salinity measured as total dissolved solids (TDS), of the groundwater in many of the aquifer zones beneath and near the City exceeds the Secondary Upper Limit of the Domestic Water Quality Standards. The City's

2008 Master Plan for Water Distribution System (Water Master Plan) assumes that treated surface water will be a source of water in the future. The Water Master Plan recommends treated surface water be used as usable groundwater becomes scarce. This recommendation was made on the basis that the cost of procurement and treatment of surface water was more economical than desalination of groundwater and has less environmental consequences. However, there continue to be advancements in reverse osmosis (RO) membrane technology that continue to reduce the cost of RO treatment. Depending upon the success of procurement of a surface water supply, desalination of the groundwater may become an attractive alternative to meet future water needs provided disposal of the brine can be accomplished economically and without significant adverse environmental impact. Without marked changes in the Subbasin water supply and demand balance, the groundwater supply should be sufficient to meet the City needs through 2035.

The City lies inland and therefore desalination of ocean water is not practical.

## 4.05 Recycled Water Opportunities

### **Law**

*Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area (10633).*

*(Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal (10633(a)).*

*(Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project (10633(b)).*

*(Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use (10633(c)).*

*(Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses (10633(d)).*

*(Describe) the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision (10633(e)).*

*(Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year (10633(f)).*

*(Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use (10633(g)).*

## Wastewater System Description

Sewage is collected throughout the City via a network of sanitary sewer collection pipelines ranging from 4 to 30 inches in diameter. With the aid of 13 sewer lift stations, the influent is gravity fed to the wastewater treatment plant (WWTP) in the northeast part of the City.

The WWTP was originally constructed in 1961 and last expanded in 1997. Currently, treatment of wastewater at the WWTP is accomplished in seven facultative ponds (four treatment and three storage) without additional aeration, totaling approximately 509 acres. Disposal of treated wastewater (effluent reuse)

is accomplished by irrigation of pastureland, in addition to the percolation and evaporation that occurs in the ponds. Wastewater flows to the WWTP has averaged about 3.23 million gallons per day (mgd) during the last five years. The current maximum capacity of the WWTP is 4.9 mgd per the permit.

Although well under the permitted flow capacity of the WWTP, the City is planning to expand the plant again because the plant's capacity to reduce the biochemical oxygen demand (BOD<sub>5</sub>) of the wastewater is being reached because of large increases in organic waste from industrial dischargers and also to meet the increasing domestic discharges from the growing City. The City is currently evaluating alternative treatment methods and expansion alternatives.

### Wastewater Generation, Collection, and Treatment

The average daily volume of wastewater collected and treated in 2010 was estimated to be approximately 2.91 mgd, yielding a yearly total of approximately 1,060 million gallons, or about 3,250 AF. Table 21 provides the past and projected annual volumes of wastewater to be collected and treated by the City from 2005 to 2035, in five-year increments, as presented in the City's 2008 Master Plan for Wastewater Collection System (Wastewater Master Plan). For this Plan, it is assumed that the vast majority of water conservation programs and measures implemented will be related to outdoor water use and therefore the volumes of wastewater projected to be collected, treated and reused by the City as shown in the Wastewater Master Plan are representative of future volumes. In addition, the City has essentially met its Urban Water Use Target and therefore little reduction in wastewater flows on a per capita basis is expected in the future.

| <b>Table 21. Recycled Water — Wastewater Collection and Treatment (AFY)</b> |             |             |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Type of Wastewater</b>   | <b>2005</b> | <b>2010</b> | <b>2015</b> | <b>2020</b> | <b>2025</b> | <b>2030</b> | <b>2035</b> |
| Wastewater collected and treated in service area                            | 3,861       | 3,250       | 5,670       | 6,890       | 8,380       | 10,190      | 10,610      |
| Volume that meets recycled water standard                                   | 0           | 0           | 0           | 0           | 0           | 0           | 0           |

### Wastewater Disposal and Recycled Water Uses

The City does not currently treat any wastewater to recycled water standards to allow it to be used as a component of its water supply. A portion of the effluent from the City's WWTP is reused through the irrigation of approximately 417 acres of pastureland to the north and east of the ponds. Future expansion of the WWTP currently includes planned expansion of the effluent reuse area to approximately 720 acres according to the Wastewater Master Plan. The current and projected volumes of effluent to be reused by irrigation of pastureland are shown in Tables 22 through 24. Projected volumes are based on an annual growth rate of 4.1% and assume that the City will develop the additional acreage as required for continued effluent disposal through reuse on pastureland. This reuse of effluent also reduces the demand on the other water supplies available to the area (primarily groundwater) and provides additional groundwater recharge through deep percolation of a portion of the applied effluent.

| <b>Table 22. Recycled Water — Nonrecycled Wastewater Disposal (AFY)</b> |                        |             |             |             |             |             |             |
|---|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Method of disposal</b>   | <b>Treatment Level</b> | <b>2010</b> | <b>2015</b> | <b>2020</b> | <b>2025</b> | <b>2030</b> | <b>2035</b> |
| Reuse on pastureland <sup>1</sup>                                       | secondary              | 551         | 670         | 820         | 1,010       | 1,230       | 1,500       |
| Groundwater recharge <sup>2</sup>                                       | secondary              | NA          | NA          | NA          | NA          | NA          | NA          |
| Total   |                        | 551         | 670         | 820         | 1,010       | 1,230       | 1,500       |

<sup>1</sup> The quality of effluent reused on pastureland does not meet the standards for recycled water.  
<sup>2</sup> Recharge occurs in the WWTP ponds and through deep percolation of a portion of the applied effluent but the volume is unknown.

## Potential Uses of Recycled Water

Wide-scale systematic direct use of recycled water in the City is technically feasible yet economically unsupportable. The current WWTP is located near the northeast limit of the City and no recycled water distribution infrastructure exists between the City and the WWTP. To develop distribution piping from the WWTP to areas throughout the City is presently cost prohibitive. Additionally, there are no large-scale users that would benefit in proportion to the cost of installing separate distribution systems.

While the current method of reuse reduces the demand on the groundwater and provides basin recharge, there are more direct ways to obtain water supply benefit through recycling of wastewater. These options include treatment and exchange of recycled water whereby the City would receive good quality surface water and the recycled water would be used more regionally for a broad range of agricultural uses. The potential for exchange of recycled water for a surface water supply will be investigated as part of the City's effort to acquire a surface water supply as previously discussed.

Treatment for use in landscape and park irrigation within the community is also an option currently not economical since this reuse opportunity is limited and presently the WWTP is not capable of producing recycled water meeting the standards required for urban water uses and no recycled water distribution facilities have been constructed. Potential recycled water program alternatives are expected to be evaluated as part of the proposed WWTP expansion project. In addition, non-potable groundwater can be developed for irrigation use on these areas.

Another option within the City for the use of recycled water is increasing the recycling of industrial wastewater. Some recycling is being accomplished so the opportunities are limited for industry to install equipment for treating and recirculating process water rather than releasing it to the sanitary sewer. The potential for increasing recycled industrial wastewater has not been studied, and no estimates of its potential water supply benefit are available. Potential future uses for recycled water and a comparison of past and present uses and their associated volumes are presented in Tables 23 and 24.

| <b>Table 23. Recycled Water — Potential Future Use (AFY)</b>  |                                   |                       |             |             |              |              |              |
|---|-----------------------------------|-----------------------|-------------|-------------|--------------|--------------|--------------|
| <b>User type</b>  | <b>Description</b>                | <b>Feasibility</b>    | <b>2015</b> | <b>2020</b> | <b>2025</b>  | <b>2030</b>  | <b>2035</b>  |
| Agricultural irrigation   | Reuse on pastureland <sup>1</sup> | Currently implemented | 670         | 820         | 1,010        | 1,230        | 1,500        |
| Landscape irrigation  |                                   |                       |             |             |              |              |              |
| Commercial irrigation   |                                   |                       |             |             |              |              |              |
| Golf course irrigation  |                                   |                       |             |             |              |              |              |
| Wildlife habitat  |                                   |                       |             |             |              |              |              |
| Wetlands  |                                   |                       |             |             |              |              |              |
| Industrial reuse  |                                   |                       |             |             |              |              |              |
| Groundwater recharge <sup>2</sup>   |                                   |                       | NA          | NA          | NA           | NA           | NA           |
| Seawater barrier  |                                   |                       |             |             |              |              |              |
| Geothermal/Energy   |                                   |                       |             |             |              |              |              |
| Indirect potable reuse  |                                   |                       |             |             |              |              |              |
| Other (user type)   |                                   |                       |             |             |              |              |              |
| Other (user type)   |                                   |                       |             |             |              |              |              |
| <b>Total</b>  |                                   |                       | <b>670</b>  | <b>820</b>  | <b>1,010</b> | <b>1,230</b> | <b>1,500</b> |
| <sup>1</sup> The quality of effluent reused on pastureland does not meet the standards for recycled water.<br><sup>2</sup> Recharge occurs in the WWTP ponds and through deep percolation of a portion of the applied effluent but the volume is unknown. |                                   |                       |             |             |              |              |              |

| <b>Table 24. Recycled Water — 2005 UWMP Use Projection Compared to 2010 Actual (AFY)</b>  |                        |                                 |
|---|------------------------|---------------------------------|
| <b>Use Type</b>   | <b>2010 Actual Use</b> | <b>2005 Projection for 2010</b> |
| Agricultural irrigation <sup>1</sup>  | 551                    | NA                              |
| Landscape irrigation  |                        |                                 |
| Commercial irrigation   |                        |                                 |
| Golf course irrigation  |                        |                                 |
| Wildlife habitat  |                        |                                 |
| Wetlands  |                        |                                 |
| Industrial reuse  |                        |                                 |
| Groundwater recharge <sup>2</sup>   | NA                     | NA                              |
| Seawater barrier  |                        |                                 |
| Geothermal/energy   |                        |                                 |
| Indirect potable reuse  |                        |                                 |
| Other (user type)   |                        |                                 |
| Other (user type)   |                        |                                 |
| <b>Total</b>  | <b>551</b>             | <b>NA</b>                       |
| <sup>1</sup> The quality of effluent reused on pastureland does not meet the standards for recycled water.                                  |                        |                                 |
| <sup>2</sup> Recharge occurs in the WWTP ponds and through deep percolation of a portion of the applied effluent but the volume is unknown. |                        |                                 |

### Encouraging Recycled Water Use

All new car wash facilities permitted in the City since 2005 have been required to employ a closed loop water recycling system for delivering wash water. New industrial facilities that include condensers requiring cooling water are also encouraged to employ a closed loop system. The City will assist industrial and commercial customers in designing recycling projects conducive to City operations. As part of the educational efforts of the City, recycling and conservation issues are included in school and public education forums. There have been no studies on the potential volumes that may be recycled as a result of the City policies and education efforts. Actions to encourage recycled water use are summarized in Table 25.

| <b>Table 25. Methods to Encourage Recycled Water Use (AFY)</b> |                          |             |             |             |             |             |
|--|--------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Actions</b>   | <b>Projected Results</b> |             |             |             |             |             |
|  | <b>2010</b>              | <b>2015</b> | <b>2020</b> | <b>2025</b> | <b>2030</b> | <b>2035</b> |
| Car wash recycling   | NA                       | NA          | NA          | NA          | NA          | NA          |
| Industrial recycling   | NA                       | NA          | NA          | NA          | NA          | NA          |
| Education  | NA                       | NA          | NA          | NA          | NA          | NA          |
| <b>Total</b>   | <b>NA</b>                | <b>NA</b>   | <b>NA</b>   | <b>NA</b>   | <b>NA</b>   | <b>NA</b>   |

### Recycled Water Optimization Plan

The City's Public Works Department provides assistance to industrial and commercial customers in facilitating on-site recycled water use. Additional opportunities for increased reuse of effluent for irrigation of pastureland will be evaluated as part of the planned expansion of the WWTP. Opportunities for reuse of effluent meeting recycled water standards will also be explored as part of the proposed WWTP expansion project and as part of the investigation of the potential for acquisition of a surface water supply.

## 4.06 Future Water Projects

### Law

*(Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program (10631(h)).*

The City of Los Banos currently relies solely on groundwater for its water supply. In addition to the need for future distribution pipelines, the Water Master Plan identified the need for five new wells to meet projected demands through 2015 and two new 2.0 million gallon storage tanks with booster pumps by 2015 to meet operational and fire storage requirements. However, the Water Master Plan does not account for the water use reductions that have occurred the last two years and that are required by the Water Conservation Bill of 2009 and are identified in this Plan. In addition, population growth and development activity in the City has slowed considerably over the last few years so the build out of facilities identified in the Water Master Plan will likely occur over a longer period of time. Therefore, as of the date of adoption of this Plan, the City has not identified or scheduled any water supply projects as shown in Table 26.

| Table 26. Future Water Supply Projects |                      |                           |                               |                    |                        |                                     |                                      |                                     |
|--|----------------------|---------------------------|-------------------------------|--------------------|------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| Project Name                           | Projected Start Date | Projected Completion Date | Potential Project Constraints | Normal-Year Supply | Single-Dry Year Supply | Multiple-Dry Year First Year Supply | Multiple-Dry Year Second Year Supply | Multiple-Dry Year Third Year Supply |
| None currently scheduled               |                      |                           |                               |                    |                        |                                     |                                      |                                     |
|  |                      |                           |                               |                    |                        |                                     |                                      |                                     |
| Total                                  |                      |                           |                               |                    |                        |                                     |                                      |                                     |

## Section 5. Water Supply Reliability and Water Shortage Contingency Planning

### 5.01 Water Supply Reliability

#### **Law**

*An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions (10620(f)).*

*For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable (10631(c)(2)).*

#### **Resource Maximization/Import Minimization Plan**

Water management tools and options available to the City to maximize resources and minimize its need to import water are discussed in Section 3.04-Water Use Reduction Plan, Section 4.05-Recycled Water Opportunities and Section 6-Demand Management Measures. Los Banos does not import any of its water supply. All water supply is obtained from City-owned groundwater wells distributed throughout the City and producing water from the Delta-Mendota Subbasin. The City's objective in supplying water to its users is to maximize its groundwater resources utilization through water-conserving measures, as discussed in the previously mentioned sections of this report, and thus reducing the future need to import water.

Although the City does not have a Groundwater Management Plan it is actively managing its water system and water use in an attempt to maximize the resource and minimize the need to import surface water supplies. The Subbasin is not currently in a state of overdraft although portions of the larger San Joaquin River Groundwater Basin are, as identified by DWR and described in Section 4.02. This does not mean that the City is not concerned about protecting its water resources, both in terms of availability and quality.

The City as well as DWR monitors water levels in area wells. Water quality monitoring is also conducted by the City and is reported annually to its citizens and the State Department of Health Services. Central California Irrigation District (CCID) serves much of the agricultural land to the north, west, and south of the City with Central Valley Project (CVP) water as an exchange supply for surface water previously diverted from the San Joaquin River. CCID customers also use groundwater pumped from the Delta-Mendota Subbasin to supplement their surface water use. CCID also monitors water levels in area wells and produces annual reports on water levels in the District. The City and CCID share the same groundwater basin and work very closely on regional water issues. Approximately every ten years, the City and CCID cooperate in a study of groundwater conditions in the vicinity of the City as previously discussed. Continued cooperation with CCID to manage the groundwater basin will be essential to maintaining the availability of potable groundwater resources in the area.

#### **Reliability of Groundwater Supply**

The climatic conditions of the central San Joaquin Valley demand careful water management practices because of the typically low amount of rainfall and short rainy season and because of the high temperatures that frequently occur in the summer months. The average annual precipitation for the Los Banos area is 9.24 inches. The rainy season runs from November through April, but 80 percent of the rainfall occurs between the beginning of November and the end of March. Drought conditions are not uncommon and can last for multiple years. Summer water consumption varies directly with daily temperature maximums and the Los Banos region experiences on average over 100 days a year with maximum daily temperatures over 90 degrees.



The reliability and vulnerability of the City's water supply to seasonal or climactic changes can be easily qualified, but reliability and vulnerability are difficult to quantify. Because the City relies entirely on groundwater using multiple extraction wells, the intermittent overdraft will obviously be more severe during drought periods. To date, water levels in the Subbasin have shown the ability to recover from reduced rainfall (drought) and reduced surface water deliveries as described in Section 4.02. As growth in the area continues and increased demands are placed on the groundwater resources of the area, a condition of sustained overdraft may be reached but this condition is not expected to occur for many years. Recharge, conservation, and seeking new primary and backup water sources, such as surface water, will all reduce vulnerability and increase reliability.

The primary factor affecting the reliability of the City's supply is the limited quantity of groundwater meeting drinking water standards as opposed to a limit in the availability of groundwater. One of the City wells has arsenic concentrations exceeding the maximum contaminant level (MCL) of 10 milligrams per liter and has been placed on standby status. Also, many of the balance of City wells are near the arsenic MCL. This may require exploring for new well locations where the arsenic levels are well below the MCL. There are other groundwater constituents such as salinity, radiological, chromium VI and nitrates that have the potential to reduce the desirability and affordability of using groundwater. This may encourage the City to explore surface water supply alternatives. The quality of the groundwater produced by City wells is discussed in greater detail in Section 5.03. There are no factors that currently result in an inconsistency in the City's water supply as shown in Table 29. Groundwater has and will continue to provide drought protection for the City.

**Table 29. Factors Resulting in Inconsistency of Supply (AFY)**

| <b>Water supply sources</b> | <b>Specific source name, if any</b> | <b>Limitation quantification</b> | <b>Legal</b> | <b>Environmental</b> | <b>Water quality</b> | <b>Climatic</b> | <b>Additional information</b> |
|-----------------------------|-------------------------------------|----------------------------------|--------------|----------------------|----------------------|-----------------|-------------------------------|
| Groundwater                 | Delta-Mendota Subbasin              | None                             |              |                      |                      |                 |                               |
|                             |                                     |                                  |              |                      |                      |                 |                               |
|                             |                                     |                                  |              |                      |                      |                 |                               |

Based on the resiliency of the groundwater basin and as long as potable groundwater can be extracted by the City wells, which are individual sources in certain respects, it is not anticipated that a single or multiple dry year period will reduce the availability of water supply to the City, as shown in Table 31. The reliability of water service is subject to proper operation and maintenance of the City's water distribution system and its ability to deliver the water. The City of Los Banos water distribution system historically has provided a very reliable level of service. A looped distribution system with isolation valves limits and minimizes service disruption. The frequency of system outages is very small due to an ambitious maintenance and replacement program. City Improvement Standards are in place and meet or exceed American Water Works Standards. As the system is expanded the Water Master Plan is followed. As a result, system reliability does not diminish as it is expanded into new service areas. Funds to maintain and expand the system to meet the continued growth in water demand are collected through water rates and development fees.

**Table 31. Supply Reliability — Current Water Sources (AFY)**

| <b>Water supply sources</b> | <b>Average / Normal Water Year Supply</b> | <b>Multiple Dry Water Year Supply</b> |                  |                  |
|-----------------------------|---|---------------------------------------|------------------|------------------|
|                             |   | <b>Year 2011</b>                      | <b>Year 2012</b> | <b>Year 2013</b> |
| Groundwater                 | 100%                                      | 7,901                                 | 8,225            | 8,562            |
|                             |   |                                       |                  |                  |
|                             |   |                                       |                  |                  |
| Percent of normal year:     | 100%                                      | 100%                                  | 100%             | 100%             |

## 5.02 Water Shortage Contingency Planning

### **Law**

*Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster (10632(c)).*

*Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning (10632(d)).*

*Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply (10632(e)).*

*Penalties or charges for excessive use, where applicable (10632(f)).*

*An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments (10632(g)).*

*A draft water shortage contingency resolution or ordinance (10632(h)).*

### **Preparation for Catastrophic Water Supply Interruption**

The City relies solely on groundwater for its source of water supply and is therefore not subject to reduction in its water supply like communities that rely on surface water to meet all or a portion of their water demands. As discussed in Section 4.02, the Delta-Mendota Subbasin water levels are very stable and in fact have risen since 1970 and groundwater in the Los Banos area specifically has been approximately in balance over the 1989 to 2009 period. In addition, the quality of the groundwater produced by the City wells currently meets all drinking water standards. If and when drinking water standards are exceeded at a particular well, the City will develop the required groundwater treatment facilities or construct a replacement well if needed. A treated surface water supply component may be added to the system in the future as previously discussed.

As discussed in Section 4.02, because of large volumes of available groundwater and the fact that water levels are very stable in the Subbasin and the Los Banos area it is anticipated that groundwater will be able to meet all the water supply needs of the City for the next 25 years and beyond, even in drought periods such as the severe one year drought experienced in 1977 and the prolonged drought of 1987 to 1992. The City plans to have groundwater be its supply due to its availability even during extended drought periods. However groundwater treatment may eventually be required if not replaced or supplemented by the use of treated surface water.

### **Water Shortage Contingency Plan**

The Urban Water Management Planning Act requires that a water shortage contingency analysis be prepared to address methods to react to a water shortage situation, which reduces supply by up to 50 percent of water available to the City. Because of the City's reliance on groundwater for its supply, a water shortage of this magnitude would be due to a catastrophic interruption of water supply caused by a regional power outage, an earthquake, or other disaster. Conservation measures encouraged or required during a water shortage are temporary measures to last only for the duration of the shortage. This Water Shortage Contingency Plan presents the City's planned action associated with different stages of water supply shortage up to a 50 percent shortage of supply. Each of these stages is discussed below.

### Stages of Action

The City of Los Banos has three trigger levels which correspond to three water shortage stages. The rationing plan includes voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage. The water shortage stages have reduction in consumption goals varying from 10% to 50%. Stage 1, with a target of between 10% and 15% reduction, is effective when available water production is 10% to 15% less than the estimated monthly peak hourly demand. Stage 2, with a target of between 15% and 30% reduction, is effective whenever the available water production is 15% to 30% less than the estimated monthly peak hourly demand. Stage 3, with a target of between 30% and 50% reduction, is effective whenever the available water production is 30% to 50% less than the estimated monthly peak hourly demand. The shortage stages, the initiating conditions and the reduction goals are presented in Table 35.

| <b>Table 35. Water Supply Stages and Conditions</b> |  |                   |
|---|--|-------------------|
| <b>Stage No.</b>                                    | <b>Water Supply Conditions</b>   | <b>% Shortage</b> |
| 1 (Voluntary)                                       | Available water production is 10% to 15% less than the estimated monthly peak hour demands | 10 to 15          |
| 2 (Mandatory)                                       | Available water production is 15% to 30% less than the estimated monthly peak hour demand  | 15 to 30          |
| 3 (Mandatory)                                       | Available water production is 30% to 50% less than the estimated monthly peak hour demand  | 30 to 50          |

### Catastrophic Supply Interruption Plan

In the event of a catastrophic water supply interruption immediate measures need to be planned that will allow the City to provide a minimum amount of water to customers. Possible catastrophes include a regional power outage, terrorism event at selected locations or a natural disaster which affects selected facilities.

#### **Preparation Actions for a Catastrophe**

| <b>Possible Catastrophe</b> | <b>Summary of Actions</b>   |
|-----------------------------|---|
| Regional power outage       | Activate emergency backup power and provide public notice through broadcasts of emergency and ask customers to reduce consumption to essential uses |
| Earthquake                  | Utilize emergency backup power if utility provided power is interrupted. Immediately implement Stage 2 or Stage 3 demand reduction program          |
| Terrorism event             | Make use of alternate production facilities as available  |

### Prohibitions, Penalties, and Consumption Reduction Methods

The first step in a demand reduction program is to prohibit wasteful practices and provide enforcement methods. The current City ordinance regulates waste of water and provides penalties for waste and failure to comply with any water conservation program the City enacts, such as scheduled days for outdoor watering. The penalties range from a first time warning to progressively more severe fines as discussed in Section 6.13.

In a water shortage situation, additional mandatory prohibitions, consumption reduction methods, and associated penalties and charges will apply as presented in Tables 36 through 38. The City will notify its customers of the implementation of a declared water shortage stage or an increase in the level of the water shortage stage. Any customer violating the regulations and restrictions on water use set forth in the emergency water shortage resolution adopted by the City Council shall receive a written warning for the first such violation. Upon subsequent violations, the customer shall receive written warning and a penalty fee will be added to their water bill as shown in Table 38.

| <b>Table 36. Mandatory Prohibitions</b>           |   |
|---|---|
| <b>Examples of Prohibitions</b>                   | <b>Stage When Prohibition Becomes Mandatory</b> |
| Washing cars without a shutoff valve on hose      | Stage 1   |
| Prohibiting use of water for driveway cleaning    | Stage 1   |
| Prohibiting use of water for City street cleaning | Stage 2   |
| No vehicle washing                                | Stage 3   |

| <b>Table 37. Consumption Reduction Methods</b> |                                       |                                |
|--|---------------------------------------|--------------------------------|
| <b>Consumption Reduction Method</b>            | <b>Stage When Method Takes Effect</b> | <b>Projected Reduction (%)</b> |
| Voluntary rationing                            | Stage 1                               | 10 to 15                       |
| Mandatory irrigation conservation program      | Stages 1 & 2                          | 15 to 30                       |
| No new connections                             | Stage 3                               | None, but no increase          |
| No refilling of pools                          | Stage 3                               | 1                              |
| Customer allotments/rate changes               | Stage 3                               | 30 to 50                       |

| <b>Table 38. Penalties and Charges</b>   |                                   |  |
|--|-----------------------------------|--|
| <b>Water Use Violation</b>   | <b>Penalty/Charge<sup>1</sup></b> | <b>Stage When Penalty Takes Effect</b> |
| Water waste violation (Municipal Code Sec. 6-7.28)   | \$15                              | Currently in effect                    |
| Water use violation during declared water shortage   | \$30                              | Stage 2                                |
| Water use violation during declared water shortage   | \$50                              | Stage 3                                |
| <sup>1</sup> Customer will receive a warning for first offense. Penalties shown are for second offense and will be added to the customer's water bill. Penalties for subsequent offenses will be 150% of the previous penalty. |                                   |  |

#### Analysis of Revenue Impacts of Reduced Sales During Shortages

The City of Los Banos has a flat rate component in its current rate structure for its residential customers that are billed on a volume basis by means of a water meter. The residential flat rate component is currently \$16.24 per month which includes up to 1,500 cubic feet (cf) of water. Water use in excess of 1,500 cf per month is charged at the rate of \$1.26 per hundred cubic feet (hcf). The flat rate component of the water rate is designed to cover basic operation and maintenance costs and helps mitigate the financial impacts of a water shortage. Therefore reduced water sales on a temporary basis will not prevent the continued operation of the water system. In addition, the City currently has approximately \$100,000 in a water system emergency fund.

#### Water Shortage Emergency Resolution

Water use prohibitions and enforcement mechanisms must be approved by City Council resolution. A Draft Water Shortage Emergency Resolution is included in Appendix D. The resolution can be modified depending on the severity of the drought and can be approved quickly, should an emergency arise. It is not currently adopted, as specific conditions of each emergency will likely be added as each emergency arises.

#### Water Use Monitoring Mechanisms

Under normal water supply conditions, potable water production figures are recorded daily.

During a Stage 1 water shortage, weekly production figures shall be reported to the City Manager. The City Manager shall compare the weekly production to the target weekly production to verify that the reduction

goal is being met. Monthly reports shall be sent to the City Council. If reduction goals are not met, the City Manager will notify the City Council so that corrective action can be taken.

During a Stage 2 or Stage 3 water shortage, the procedure listed above will be followed, with the addition of a daily production report to the City Manager.

During emergency shortages, production figures shall be reported hourly to the City Manager daily. Daily reports shall also be provided to the City Council.

### **Emergency Preparation**

In preparation for possible electrical service interruptions, all of the City's active wells are equipped with dual drive equipment. These wells are equipped with backup diesel and natural gas engines to be used in the event of a power failure. The backup equipment is routinely maintained and tested to ensure the facilities can continue to deliver the full water supply in the event of a power outage.

### **Agency Coordination**

The City's preparation for a catastrophic water supply interruption includes coordination with any or all of the following agencies depending upon the severity of the actual emergency:

- Merced County Sheriff Department
- California Department of Transportation
- California Office of Emergency Services
- California Highway Patrol
- California Department of Water Resources
- Pacific Gas & Electric Company
- California Department of Public Health

## **5.03 Water Quality**

### ***Law***

*The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability (10634).*

The quality of the groundwater available to the City is quite variable. With careful siting of wells and selection of aquifer production zones, groundwater meeting the Domestic Water Quality Standards (drinking water standards) has been successfully developed to meet the needs of the City. As required by State regulations, all wells are equipped with a chlorine injection system. Well No. 8 was removed from service in 2000 when the MCL for uranium, a primary drinking water standard was exceeded. In addition, Well 15 is on standby because of elevated arsenic concentrations. Two of the twelve wells exceed the recommended limits but are less than the upper limits of the secondary standards for electrical conductivity (EC) and total dissolved solids (TDS). Exceeding any secondary standards does not constitute a health issue. Secondary standard MCLs are set based on consumer acceptability of the supply, as the secondary constituents above upper limits may adversely affect taste, odor or appearance of the drinking water. Nitrates and chromium VI have also been found in some well water and use of that well water could be impacted by future changes in drinking water standards. The quality of the groundwater in the Delta-Mendota Subbasin is further discussed in Appendix C and in the "Update on Groundwater Conditions in the Vicinity of the City of Los Banos" report.

The availability of groundwater meeting the standards is limited and therefore the City expects that surface water may eventually become a component of its water supply. The estimates of water supply impacts due to water quality problems, shown in Table 30, assume that the City will continue to rely solely on

groundwater, treated or untreated, for its supply since it currently has no surface water supplies or entitlements although this may change as the City is investigating the acquisition of a surface water supply due to the limited availability of groundwater meeting drinking water standards. If treated surface water supply is incorporated into the City's water system in the future it is anticipated that the City will maintain the existing wells as a supplemental supply to be used to meet peak demands and during times of reduced surface supply. Assuming the City will treat groundwater if required and the fact that there is adequate quantity of groundwater to meet the projected demands of the City through 2035, water quality issues are not expected to impact the availability of the City's water supply and their ability to meet demands.

| Table 30. Water Quality — Current and Projected Water Supply Impacts (AFY) |   |      |      |      |      |      |      |
|--|---|------|------|------|------|------|------|
| Water Source   | Description of Condition                      | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
| Groundwater  | Availability of good quality water is limited | 0    | 0    | 0    | 0    | 0    | 0    |
|  |   |      |      |      |      |      |      |
|  |   |      |      |      |      |      |      |

## 5.04 Drought Planning

### Law

*Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) an average water year, (B) a single dry water year, (C) multiple dry water years (10631(c)(1)).*

*Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage (10632(a)).*

*An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply (10632(b)).*

*A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis 10632(i).*

*Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier (10635(a)).*

The reliability of the City's water supply and lack of vulnerability to seasonal or climatic shortage is discussed in Section 5.01. As previously stated, based on the resiliency of the groundwater basin and as long as potable groundwater can be extracted by the City wells, which are individual sources in certain respects, it is not anticipated that a single or multiple dry year period will reduce the availability of water supply to the City. Groundwater has and will continue to provide drought protection for the City. However, the City has engaged in extensive emergency planning in preparation for potential service interruptions and a Water Shortage Contingency Plan is presented in Section 5.02.

Table 27 presents the basis for the water year data used in Table 28 that presents the historic water supply reliability during various hydrologic conditions. The single driest year of recent record was 1977, the average year selected was 2005, and the years of 1989-1992 were used to represent a multiple dry year series. Comparisons of projected supply and demand for normal year, single dry year, and multiple dry year events through 2035, in five-year increments, are presented in Tables 32 through 34.

| Table 27. Basis of Water Year Data |              |
|------------------------------------|--------------|
| Water Year Type                    | Base Year(s) |
| Average Water Year                 | 2005         |
| Single-Dry Water Year              | 1977         |
| Multiple-Dry Water Years           | 1989-1992    |

| Table 28. Supply Reliability — Historic Conditions |                       |                          |                 |                 |                 |
|--|-----------------------|--------------------------|-----------------|-----------------|-----------------|
| Average / Normal Water Year                        | Single Dry Water Year | Multiple Dry Water Years |                 |                 |                 |
|  |                       | Year 1                   | Year 2          | Year 3          | Year 4          |
| 7,597  | NA <sup>1</sup>       | NA <sup>1</sup>          | NA <sup>1</sup> | NA <sup>1</sup> | NA <sup>1</sup> |
| Percent of Average/Normal Year:                    | 100                   | 100                      | 100             | 100             | 100             |

<sup>1</sup> Data not available, but in all year types the City has been able to meet demands with use of groundwater.

| Table 32. Supply and Demand Comparison — Normal Year (AFY) |       |        |        |        |        |
|--|-------|--------|--------|--------|--------|
|  | 2015  | 2020   | 2025   | 2030   | 2035   |
| Supply totals (from Table 16)                              | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
| Demand totals (From Table 11)                              | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
| Difference   | 0     | 0      | 0      | 0      | 0      |
| Difference as % of Supply                                  | 0     | 0      | 0      | 0      | 0      |
| Difference as % of Demand                                  | 0     | 0      | 0      | 0      | 0      |

| Table 33. Supply and Demand Comparison — Single Dry Year (AFY) |       |        |        |        |        |
|--|-------|--------|--------|--------|--------|
|  | 2015  | 2020   | 2025   | 2030   | 2035   |
| Supply totals  | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
| Demand totals  | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
| Difference   | 0     | 0      | 0      | 0      | 0      |
| Difference as % of Supply                                      | 0     | 0      | 0      | 0      | 0      |
| Difference as % of Demand                                      | 0     | 0      | 0      | 0      | 0      |

| Table 34. Supply and Demand Comparison — Multiple Dry-Year Events (AFY) |                           |       |        |        |        |        |
|---|---------------------------|-------|--------|--------|--------|--------|
|   |                           | 2015  | 2020   | 2025   | 2030   | 2035   |
| Multiple-dry year first year supply                                     | Supply totals             | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
|   | Demand totals             | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
|   | Difference                | 0     | 0      | 0      | 0      | 0      |
|   | Difference as % of Supply | 0     | 0      | 0      | 0      | 0      |
|   | Difference as % of Demand | 0     | 0      | 0      | 0      | 0      |
| Multiple-dry year second year supply                                    | Supply totals             | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
|   | Demand totals             | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
|   | Difference                | 0     | 0      | 0      | 0      | 0      |
|   | Difference as % of Supply | 0     | 0      | 0      | 0      | 0      |
|   | Difference as % of Demand | 0     | 0      | 0      | 0      | 0      |
| Multiple-dry year third year supply                                     | Supply totals             | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
|   | Demand totals             | 9,189 | 11,201 | 13,693 | 16,740 | 20,465 |
|   | Difference                | 0     | 0      | 0      | 0      | 0      |
|   | Difference as % of Supply | 0     | 0      | 0      | 0      | 0      |
|   | Difference as % of Demand | 0     | 0      | 0      | 0      | 0      |

## Section 6. Demand Management Measures

### **Law**

*(Describe and provide a schedule of implementation for ) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) water survey programs for single-family residential and multifamily residential customers; (B) residential plumbing retrofit; (C) system water audits, leak detection, and repair; (D) metering with commodity rates for all new connections and retrofit of existing connections; (E) large landscape conservation programs and incentives; (F) high-efficiency washing machine rebate programs; (G) public information programs; (H) school education programs; (I) conservation programs for commercial, industrial, and institutional accounts; (J) wholesale agency programs; (K) conservation pricing; (L) water conservation coordinator; (M) water waste prohibition; (N) residential ultra-low flush toilet replacement programs (10631(f)(1) and (2).*

*A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan (10631(f)(3)).*

*An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand (10631(f)(4)).*

*An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation (10631(g)).*

The City is committed to implementing programs designed to conserve and protect the quality of its groundwater. This section discusses water conservation and the City's efforts to protect the groundwater resources of the basin.

The City is not a signatory to the Memorandum of Understanding regarding Urban Water Conservation in California and is therefore not a member of the California Urban Water Conservation Council. For the purpose of responding to the Urban Water Management Planning Act, the City will address the 14 DMMs (A-N). The remainder of this section discusses the 14 DMMs and the programs that the City has implemented or is planning to implement to address the DMMs that are applicable to Los Banos. It should be noted that nothing in this UWMP is intended to limit the City's available options in implementing the DMMs or to respond to a future water or budget shortage.

### **6.01 DMM A – Water Survey Programs for Single-Family and Multi-Family Residential Customers**

Upon request, City personnel will perform an interior and exterior inspection (audit) for SFR or MFR customers in order to ascertain potential sources of water waste or water conservation opportunities. City personnel will check for water leaks and nonmandatory control measures will be suggested, and education materials regarding the importance of water conservation will be provided. If available, the City will provide customers with a water-conservation kit consisting of educational materials, faucet and shower aerators, toilet tank volume displacer, and leak detection tablets. In addition, the City performs water audits on high consumption accounts that are flagged during the billing process.



The City also offers to program customer irrigation timers as part of the City's Water Conservation Program. The City also uses this opportunity to discuss water conservation measures with the customer and give them conservation materials as applicable.

The implementation of the City's Water Conservation Patrol (Water Patrol) occurs during the highest water demand months of May through September. A large portion of the Water Patrol effort is dedicated to educating water customers on exterior water conservation measures. The education effort helps provide an incentive by informing the public on how to avoid fines and other social consequences of poor water resource stewardship. Section 6.13 further describes the City's water conservation and water waste ordinances and associated programs.

**Effectiveness.** The number of water audits performed, irrigation timers programmed, and water patrol customer visits made during the last five years is shown in Table 39. The Public Works Department budget does not contain a separate line item for these tasks and therefore expenditure information for these activities is not available. Examination of Table 39 indicates that the programs are being effectively implemented and utilized by the residents of Los Banos. This is verified in the fact that the City's water use last year (2010) was essentially the same as it was in 2005 even though its population grew by almost 4,000 people.

| <b>Table 39. Water Conservation Programs</b> |             |             |             |             |             |
|--|-------------|-------------|-------------|-------------|-------------|
| <b>Program</b>                               | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> |
| Water audits (SFR)                           | 135         | 80          | 177         | 105         | 129         |
| Water audits (MFR)                           | 0           | 3           | 1           | 1           | 0           |
| Water audits (Industrial)                    | 0           | 0           | 0           | 5           | 3           |
| Water audits (Institutional)                 | 1           | 1           | 1           | 1           | 3           |
| Water audits (Commercial)                    | 1           | 0           | 1           | 5           | 3           |
| Total water audits                           | 137         | 84          | 180         | 117         | 138         |
| Irrigation timers programmed                 | 230         | 244         | 228         | 240         | 229         |
| Water patrol visits                          | 257         | 270         | 264         | 206         | 201         |

## 6.02 DMM B – Residential Plumbing Retrofit

The City Building Department duties include enforcement of plumbing efficiency standards, which include installation of low-flow water fixtures, as part of the routine plan check procedure. This enforcement process includes specification of appropriate retrofit for low-flow fixtures for remodels. There is no City ordinance requiring all residences to retrofit plumbing fixtures with low-flow water fixtures.

In the past two years during the annual Merced County Fair the City's solid waste contractor sponsored an informational booth in which the City provided materials regarding water conservation. Educational material and customer resources are important aspects of the booth, and materials regarding the importance of plumbing retrofit for water demand mitigation are provided. In addition, the City, through the City's solid waste contractor also distributes materials regarding plumbing retrofit at the annual Seniors Fair and Street Fair in Los Banos.

**Effectiveness.** There has been no study of the number of single-family and multiple-family accounts that have low-flow water fixtures installed or the amount of water saved by the installation of the low-flow fixtures. All new and remodeled single-family and multiple-family residences have been required to install low-flow water fixtures since 1992 in accordance with all applicable State law.

### 6.03 DMM C – Water Audits, Leak Detection, and Repair of City Facilities

The City utilizes specialized equipment for leak detection as needed and has an ongoing program for detection and repair of its distribution system pipelines. The City's Supervisory Control and Data Acquisition (SCADA) system for the water production and distribution facilities provides significantly enhanced capabilities for accurately determining water production quantities. This information is invaluable in performing precise distribution system water audits. A comparison of the volume of water produced from the City wells and the volume of water sold in 2005 and 2010 is shown in Table 40. This unaccounted for water can be attributed to leaks in the system, meter inaccuracies and unauthorized water use.

| Table 40. Unaccounted for Water        |       |       |
|--|-------|-------|
|  | 2005  | 2010  |
| Total water pumped (AF)                | 7,598 | 7,590 |
| Total water sold (AF)                  | 6,969 | 6,927 |
| Unaccounted for water (AF)             | 629   | 663   |
| Unaccounted for water (%)              | 8.3   | 8.7   |
| Unaccounted for water (average) = 8.5% |       |       |

**Effectiveness.** The City does not track the number of miles of distribution system pipelines surveyed each year. The Public Works Department surveys and repairs pipelines on an as-needed basis. Expenditures for this work is not tracked separately within the Department's budget. It can be seen from examination of Table 40 that the City's unaccounted for water as a percent of total water pumped averages about 8.5 percent, which is typical for systems of similar size, type and age. Review of the volume produced versus the volume of water sold on a monthly basis assists the City in identifying problems, such as leaks and meter problems. The City also implements an annual fire hydrant and water main flushing program which accounts for a portion of the unaccounted for water.

### 6.04 DMM D – Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections

All water service connections are metered. The meters are read monthly and accounts are billed on a monthly basis. The number of metered accounts by customer account type are shown in Table 41. A copy of the City's water rate structure, effective June 21, 2009, is also included in Appendix E.

| Table 41. Number of Metered Water Accounts in 2010 |                            |
|--|----------------------------|
| Customer Account Type                              | Number of Metered Accounts |
| Single-Family Residential                          | 10,168                     |
| Multi-Family Residential                           | 533                        |
| Commercial/Institutional                           | 81                         |
| Landscape  | 180                        |

**Effectiveness.** The City has fully implemented metering with commodity rates and the impacts can be seen in the reduced water use the last couple of years.

### 6.05 DMM E - Large Landscape Conservation Programs and Incentives

Large landscape water users are subject to higher base water rates depending on the meter size. The City tracks high consumption accounts and performs periodic audits of the systems as requested or as the accounts are flagged during the billing process due to high consumption. In addition, the Water Patrol is charged with monitoring large users for violation of City watering regulations.

A copy of the City's Water Efficient Landscape Ordinance adopted in February 2010 is included in Appendix F. This ordinance applies to new construction and rehabilitation projects involving installation of new and renovation of existing large landscaped areas as defined in the ordinance. The ordinance is intended to promote water conservation and water use efficiency through the establishment of provisions for water management practices and water waste prevention for landscaping.

In addition, the City offers water audits to all water customers, including customers with large landscaped areas and landscape accounts, which may include irrigation scheduling assistance and information (Section 6.01). The City also offers assistance with programming of irrigation timers to its customers with large landscape (Section 6.01). During these visits with the customers the City staff reviews and offers assistance with irrigation scheduling and efficiency and provides the customers with educational materials to assist with these functions and to promote water conservation.

**Effectiveness.** The City does not maintain separate records for the number of large landscape audits conducted. The number of large landscape audits is included in the total number of commercial audits shown in Table 39 in Section 6.01. As previously stated, the City does not track expenditures for water audits separately within the Public Works Department budget. The effectiveness of the water survey program cannot be directly measured but it is an important component of the City's overall water conservation efforts aimed at managing its limited resource.

## **6.06 DMM F – High-Efficiency Washing Machine Rebate Program**

The City does not offer a rebate program associated with the purchase of high-efficiency clothes washing or dishwashing machines but does notify its customers of the rebates offered through the local energy provider. The local energy provider, Pacific Gas & Electric (PG&E) offers rebate programs for both types of machines. To be eligible for a \$50 rebate, the high-efficiency clothes washing machine must have minimum Modified Energy and Water Factors as outlined in the program details. Rebates for high-efficiency dishwashers are \$30 or \$50 depending on the machine's rated electricity and water usage values.

**Effectiveness.** No data is available from PG&E on the number of rebates given in the City of Los Banos and therefore the effectiveness of the program is unknown. The City will continue to notify its customers of the rebate programs offered by PG&E through its billing information process and at public events as described in Section 6.07.

## **6.07 DMM G – Public Information Programs**

The City distributes public information regarding water issues in mass mailings to all water service customers, through the City's Internet website, directly to walk-in customers at City Hall, and at the Public Works Department. Also, when warranted, time-critical public information is dispersed through the local print media, radio station announcements and public events.

Water use regulations and the annual Drinking Water Consumer Confidence Report (water quality report) are mailed each year to all customers. The City takes advantage of these mailings when necessary to provide its customers additional information on water conservation and other demand management measures. Display cases and bulletin boards at City facilities augment the mailings by providing a permanent posting of the most current City mailings.

During the annual Merced County Fair, Senior Fair and Street Fair the City's solid waste contractor staffs an informational booth. Written information and promotional or educational materials regarding water conservation are distributed at all of the fair booths.

The City monthly water bill distributed to all water service customers is another vehicle used by the City for public education purposes. The bill mailing also contains public service announcements that are used to remind citizens of conservation and demand management measures.

The costs for paid advertising (newspaper and radio) and special events (Merced County Fair and Senior Fair) for the last five years are shown in Table 42. Also, examples of water conservation and water quality protection information documents distributed through mailings and other means described in this section are included in Appendix G.

| <b>Table 42. Public Information Program Costs (\$)</b> |             |             |             |             |             |
|--|-------------|-------------|-------------|-------------|-------------|
| <b>Program</b>   | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> |
| Paid Advertising                                       | 4,530       | 4,501       | 4,574       | 1,281       | 1,100       |
| Special Events   | 3,200       | 964         | 850         | 1,646       | 1,550       |

**Effectiveness.** The effectiveness of the program cannot be measured. However, a review of water use on a per capita basis shows that water use has declined in the last several years as the public becomes more aware of the limited water resources available and the need to conserve water. This is an indication that the City's water conservation programs and activities are working and that progress is being made in the City's effort to educate its residents about the importance of protecting its limited water resources.

## 6.08 DMM H – School Education

The Public Works Department staff visits third grade classrooms and work interactively with the students to discuss and review the importance of water conservation. In addition, materials are given to the students to share with their parents. The City also encourages local educators to include conservation education in their curriculum where appropriate and will make materials and staff time available for this effort whenever possible. The number of students visited annually for the last five years is shown in Table 43.

| <b>Table 43. School Education Program</b> |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|
|   | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> |
| Number of Students Visited                | 395         | 60          | 0           | 357         | 0           |

**Effectiveness.** The City does not track the expenditures associated with these activities separately. The effectiveness of the school education program is difficult to measure but educating the students at an early age regarding the value of water conservation and the need to protect the limited resource is essential in having an educated public that will participate in City water conservation programs, mandatory or voluntary. The Public Works Department was unable to provide classroom visits during the 2008 and 2009 calendar year due to personnel and budget constraints. However, in 2011 classroom visits resumed and it is estimated that 596 students will be visited.

## 6.09 DMM I – Conservation Programs for Commercial, Industrial, and Institutional Accounts

As previously stated, trained City staff is available to conduct water audits for these customers, including review of all interior and exterior water use. Also, high consumption users are flagged for further review and possible audit. The number of water audits done for commercial, industrial, and institutional (CII) accounts are shown in Table 39 in Section 6.01.

The Water Patrol has the responsibility to educate CII users that overuse water for irrigation purposes. The Water Patrol can provide a variety of resources to help a CII customer conserve, including staff expertise and written materials. The City's wastewater treatment plant staff monitors effluent water volume and constituents for treatment purposes but also views this interaction as an opportunity to promote conservation on the discharge side, thereby indirectly promoting conservation on the consumption side.

All City-maintained median strips and traffic islands that require plantings are landscaped with drought-tolerant plants. The City maintains a list of approved plantings for public right-of-way. Criteria for inclusion on the list include low water consumption and drought tolerance.

As part of the normal City plan check process, project plans and specifications are reviewed for conformance with sound water conservation practices and compliance with all codes. Enforceable corrections or modifications are noted and returned with the plans and specifications. The Public Works Department staff member with appropriate expertise communicates non-enforceable recommendations directly to the responsible professional for the project. The project developer is also provided with a copy of the City's list of approved plantings for public right-of-way and a copy of the City's Water Efficient Landscape Ordinance, as discussed in Section 6.05.

**Effectiveness.** The City tracks the number of CII water audits and their results for CII accounts. The number of water audits performed for CII accounts from 2006 through 2010 are shown in Table 39 in Section 6.01.

## **6.10 DMM J – Wholesale Agency Programs**

The City of Los Banos does not wholesale water to any other agency, nor does it purchase water from a wholesaler.

## **6.11 DMM K – Conservation Pricing**

The City meters all of its water accounts and encourages water conservation through its water and sewer service rate structure. The Los Banos City Council approved water and sewer service rates effective June 21, 2009 are included in Appendix E.

## **6.12 DMM L – Water Conservation Coordinator**

The City's Public Works Director is the designated Water Conservation Coordinator. In addition, staff supports the coordinator and the water conservation activities of the City and its customers. The Water Conservation Coordinator's responsibilities include:

- Coordination with internal City departments and the community at large to promote the principles of responsible water resource stewardship.
- Monitoring the practice and application of DMMs.
- Supervising the activities of the Water Patrol.
- Planning and participating in community water conservation education projects.

**Effectiveness.** The Water Conservation Coordinator has authorized use of City funds to support water conservation efforts. The water conservation activities are part of the full-time Public Works Director position, and the City does not track expenditures or time spent associated with water conservation activities separately within the budget for the position.

## **6.13 DMM M – Water Waste Prohibition Program**

The City of Los Banos Municipal Code Section 6-7.28 (ordinance) prohibits water waste and irrigation of landscape during non-permitted hours and on non-permitted days. A copy of the ordinance is included in Appendix H. A copy of the 2010 Water Conservation Program announcement is included in Appendix G. Water waste is defined as excessive runoff entering the gutter, adjacent property, or public right-of-way. The Water Conservation Program restricts landscape watering to certain hours and days based on the street address. Exceptions are made for new plantings. The Water Patrol is responsible for monitoring water waste and enforcing the watering schedule. The number of visitations by the Water Patrol since 2006 is 1,198 as shown in Table 39 in Section 6.01. The current penalties for violation of the ordinance are as follows:

- First offense – Warning
- Second offense - \$15.00 penalty added to water bill
- Third offense – 150 percent of previous penalty
- Fourth offense – 150 percent of previous penalty

**Effectiveness.** The Conservation Water Program and Water Patrol has been an effective tool in educating the public on water conservation issues and in controlling water waste as evidenced by the fact that the number of visits by the Water Patrol for water use violations has decreased from 2,220 during the 2001 to 2005 period to only 1,198 during the 2006 to 2010 period.

## 6.14 DMM N – Residential Ultra-Low-Flush Toilet Replacement Program

The City Building Department enforces the provisions of California Plumbing Code Section 402.0 in regard to ultra-low flush (ULF) toilets and urinals in new and remodel construction, but the City does not currently have a program for replacement (retrofit) of older residential toilets with ULF models. An effective retrofit program can be achieved through voluntary replacement with financial incentives, or through mandatory measures, for example, requiring ULF toilet installation at time of property resale or as a permitting requirement for major renovations involving changes in the sanitary sewer lines.

**Effectiveness.** The City does not offer rebates for the purchase and installation of ULF toilets, nor does it do any direct installations for residential customers. The City does not track expenditures associated with water conservation activities with regard to ULF toilets, such as the time spent enforcing the requirements of California Plumbing Code Section 402.0.

## 6.15 Evaluation of DMMs Not Implemented

### **Law**

*10631 (g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:*

- (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.*
- (2) Include a cost-benefit analysis, identifying total benefits and total costs.*
- (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.*
- (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.*

The City, or another entity, such as PG&E, is implementing all of the applicable DMMs to some degree, except the Residential Ultra-Low-Flush Toilet (ULFT) Replacement Program. An analysis of the costs and benefits of implementing a residential ULFT replacement program is included later in this section. The City plans to continue implementation of the other DMMs as discussed in the previous individual DMM sections.

### **Evaluation of Residential ULFT Replacement Program**

The City does not offer rebates for the purchase and installation of ULF toilets, nor does the City or any community-based organization do direct installations for residential customers. Therefore, the following analysis evaluates the savings and cost factors of customer replacement of existing high water use toilets with ULF toilets in a typical SFR.

#### Cost and Water Savings Analysis

Assumptions:

- Typical SFR with two toilets.
- Cost of two new ULF toilets: \$250.
- Installation cost for two toilets: \$450.
- Total cost of two installed toilets: \$700.
- Useful life of toilets is assumed to be 20 years.
- Average annual SFR water use is 0.48 AF (428 gpd), based on City's 2010 water use for SFR.
- Water savings from conversion to ULF toilets is approximately 15,000 gallons per year, or 1,250 gallons per month (based on national averages and a household of 3.44 persons per the City's General Plan).

Benefit/Cost Ratio Analysis

- Present Value = \$700 (Project Cost)
- Number of Years = 20
- Discount Rate = 4%
- Equivalent annual cost = \$51.52, or \$4.29 per month
- Water savings = 1,250 gallons per month = 167 cf = 1.67 hcf (hcf = hundred cubic feet)
- Cost of water saved =  $\$4.29 / 1.67 \text{ hcf} = \$2.57 \text{ per hcf}$
- Cost of water purchased from the City: \$16.24 per month base rate, includes 1,500 cf of water, plus \$1.26 per hcf for usage over 1,500 cf per month.

The cost of water saved by installation of ULF toilets (\$2.57 per hcf) is more than twice the incremental cost of water from the City (\$1.26 per hcf). For a customer that exceeds the monthly baseline allocation by an amount at least equal to the amount of water saved from installation of ULF toilets, the benefit cost ratio is 0.49 (\$1.26/\$2.57).

If a customer's current water usage is within the monthly baseline amount there is no cost savings to install ULF toilets. For the average customer the benefit cost ratio is somewhere between 0 and 0.49. Based only on the cost of water saved, it is not financially beneficial for an individual customer to replace high water use toilets with ULF toilets without additional financial incentives, such a rebate on the purchase and/or installation an ULF toilet. If the cost of City water production increases by three or more fold, toilet replacement may become economically viable.

Although the City may have the legal authority to implement a toilet replacement program it currently does not have plans to do so unless required by law. If funding from outside sources, such as State grant money, were available the economic analysis would change and a replacement program may be feasible or a rebate program could be implemented. The City does not have any rights to surface water and does not have a water treatment plant and has no current plans or projects scheduled that would provide water at a greater cost than the current cost of groundwater.

Also, as technology advances there may be alternatives such as power or pressure assisted toilets that use extremely low volumes of water that will make the economic analysis favorable for replacement of high water use toilets. The environmental, social, and health factors associated with these types of toilets for residential use will have to be examined in greater detail before these types of toilets will be generally accepted for residential use.



## **Section 7. Completed UWMP Checklist**

The UWMP Checklist (organized by subject) is included and identifies the section of the Plan in which each of the UWMP requirements is addressed.

### Urban Water Management Plan Checklist (organized by subject)

| No.                     | UWMP Requirement   | Calif. Water Code Reference | Comments | Section of UWMP Where Addressed |
|-------------------------|--|-----------------------------|----------|---------------------------------|
| <b>PLAN PREPARATION</b> |  |                             |          |                                 |
| 4                       | Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.  | 10620(d)(2)                 |          | 1.01                            |
| 6                       | Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.   | 10621(b)                    |          | 1.01                            |
| 7                       | Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.  | 10621(c)                    |          | 1.02                            |
| 54                      | Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.   | 10635(b)                    |          | 1.02                            |
| 55                      | Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.   | 10642                       |          | 1.01                            |
| 56                      | Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area. | 10642                       |          | 1.01                            |
| 57                      | Provide supporting documentation that the plan has been adopted as prepared or modified.   | 10642                       |          | 1.02                            |
| 58                      | Provide supporting documentation as to how the water supplier plans to implement its plan.   | 10643                       |          | 1.02                            |

| No.                       | UWMP Requirement   | Calif. Water Code Reference | Comments | Section of UWMP Where Addressed |
|---------------------------|--|-----------------------------|----------|---------------------------------|
| 59                        | Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.   | 10644(a)                    |          | 1.02                            |
| 60                        | Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours   | 10645                       |          | 1.02                            |
| <b>SYSTEM DESCRIPTION</b> |  |                             |          |                                 |
| 8                         | Describe the water supplier service area.  | 10631(a)                    |          | 2.01                            |
| 9                         | Describe the climate and other demographic factors of the service area of the supplier   | 10631(a)                    |          | 2.02                            |
| 10                        | Indicate the current population of the service area  | 10631(a)                    |          | 2.03                            |
| 11                        | Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional or local service area population projections.  | 10631(a)                    |          | 2.03                            |
| 12                        | Describe other demographic factors affecting the supplier's water management planning.   | 10631(a)                    |          | 2.03                            |
| <b>SYSTEM DEMANDS</b>     |  |                             |          |                                 |
| 1                         | Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.   | 10608.20(e)                 |          | 3.01                            |
| 2                         | <i>Wholesalers:</i> Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. <i>Retailers:</i> Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.                        | 10608.36<br>10608.26(a)     |          | 1.01                            |
| 3                         | Report progress in meeting urban water use targets using the standardized form.  | 10608.40                    |          | NA                              |
| 25                        | Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture. | 10631(e)(1)                 |          | 3.02<br>3.03                    |

| No.                    | UWMP Requirement   | Calif. Water Code Reference | Comments | Section of UWMP Where Addressed |
|------------------------|--|-----------------------------|----------|---------------------------------|
| 33                     | Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types  | 10631(k)                    |          | 3.03 (NA)                       |
| 34                     | Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.  | 10631.1(a)                  |          | 3.02                            |
| <b>SYSTEM SUPPLIES</b> |  |                             |          |                                 |
| 13                     | Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.  | 10631(b)                    |          | 4.01                            |
| 14                     | Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.  | 10631(b)                    |          | 4.02                            |
| 15                     | Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.   | 10631(b)(1)                 |          | 4.02                            |
| 16                     | Describe the groundwater basin.  | 10631(b)(2)                 |          | 4.02                            |
| 17                     | Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.  | 10631(b)(2)                 |          | 4.02                            |
| 18                     | Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.   | 10631(b)(2)                 |          | NA                              |
| 19                     | For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate "not applicable" in the UWMP location column. | 10631(b)(2)                 |          | 4.02                            |

| No. | UWMP Requirement   | Calif. Water Code |  | Comments | Section of UWMP Where Addressed |
|-----|--|-------------------|--|----------|---------------------------------|
|     |  | Reference         |  |          |                                 |
| 20  | Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years   | 10631(b)(3)       |  |          | 4.02                            |
| 21  | Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.  | 10631(b)(4)       |  |          | 4.02                            |
| 24  | Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.   | 10631(d)          |  |          | 4.03                            |
| 30  | Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.         | 10631(h)          |  |          | 4.06                            |
| 31  | Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.  | 10631(i)          |  |          | 4.04                            |
| 44  | Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.  | 10633             |  |          | 4.05                            |
| 45  | Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.  | 10633(a)          |  |          | 4.05                            |
| 46  | Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.  | 10633(b)          |  |          | 4.05                            |
| 47  | Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.  | 10633(c)          |  |          | 4.05                            |
| 48  | Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses. | 10633(d)          |  |          | 4.05                            |

| No.   | UWMP Requirement  | Calif. Water Code Reference | Comments | Section of UWMP Where Addressed |
|---|---|-----------------------------|----------|---------------------------------|
| 49  | The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.   | 10633(e)                    |          | 4.05                            |
| 50  | Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.  | 10633(f)                    |          | 4.05                            |
| 51  | Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use. | 10633(g)                    |          | 4.05                            |
| <b>WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING</b> |   |                             |          |                                 |
| 5   | Describe water management tools and options to maximize resources and minimize the need to import water from other regions.   | 10620(f)                    |          | 5.01                            |
| 22  | Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.  | 10631(c)(1)                 |          | 5.01                            |
| 23  | For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.  | 10631(c)(2)                 |          | 5.01                            |
| 35  | Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage   | 10632(a)                    |          | 5.02                            |
| 36  | Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.   | 10632(b)                    |          | 5.01                            |
| 37  | Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.   | 10632(c)                    |          | 5.02                            |
| 38  | Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.   | 10632(d)                    |          | 5.02                            |

| No.                               | UWMP Requirement   | Calif. Water Code |      | Comments | Section of UWMP Where Addressed |
|-----------------------------------|--|-------------------|------|----------|---------------------------------|
|                                   |  | Reference         | Code |          |                                 |
| 39                                | Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.  | 10632(e)          |      |          | 5.02                            |
| 40                                | Indicated penalties or charges for excessive use, where applicable.  | 10632(f)          |      |          | 5.02                            |
| 41                                | Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.   | 10632(g)          |      |          | 5.02                            |
| 42                                | Provide a draft water shortage contingency resolution or ordinance.  | 10632(h)          |      |          | 5.02                            |
| 43                                | Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.   | 10632(i)          |      |          | 5.02                            |
| 52                                | Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability  | 10634             |      |          | 5.03                            |
| 53                                | Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier. | 10635(a)          |      |          | 5.04                            |
| <b>DEMAND MANAGEMENT MEASURES</b> |  |                   |      |          |                                 |
| 26                                | Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.  | 10631(f)(1)       |      |          | 6.01-6.14                       |
| 27                                | Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.   | 10631(f)(3)       |      |          | 6.01-6.14                       |
| 28                                | Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.  | 10631(f)(4)       |      |          | 6.01-6.14                       |

| No. | UWMP Requirement  | Calif. Water Code Reference | Comments | Section of UWMP Where Addressed |
|-----|---|-----------------------------|----------|---------------------------------|
| 29  | Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work. | 10631(g)                    |          | 6.15                            |
| 32  | Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.  | 10631(j)                    |          | NA                              |



**Appendix A**  
**Notice of Public Hearing**

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# Declaration of Publication

(2015.5 C.C.P)

STATE OF CALIFORNIA )  
 ) ss.  
County of Merced )

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the Los Banos Enterprise, a newspaper of general circulation, printed and published in the City of Los Banos, County of Merced, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Merced, State of California, under the date of June 16, 1952, Case Number 21594 that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

April 1, 8, 2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

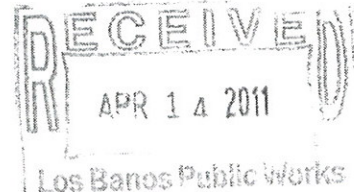
*Marlyn Gonzalez*

Signature

Date: April 8, 2011

This space reserved for County Clerk's Filing Stamp

CITY OF LOS BANOS  
NOTICE OF PUBLIC HEARING  
TO RECEIVE PUBLIC COMMENT ON THE CITY OF LOS BANOS' 2010 URBAN WATER MANAGEMENT PLAN (UWMP) AND CONSIDER A RESOLUTION ACCEPTING THE 2010 UWMP  
Where: City Council Chambers When: Wednesday, June 1, 2011  
520 J Street 7:00 PM  
Los Banos, California  
Notice is hereby given that the City of Los Banos will conduct a Public Hearing to receive public comment and consider a Resolution accepting the 2010 Urban Water Management Plan (UWMP). The City of Los Banos is currently updating its 2005 UWMP to be in compliance with the UWMP Act (California Water Code §10610 et seq.) and the Water Conservation Bill of 2009 (SBX7-7). The UWMP Act requires urban water suppliers to update their UWMP every five years. The UWMP Act directs water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future demands and to consider various drought scenarios. Based on legislative changes resulting from SBX7-7, development of UWMP's will also enable water agencies and, in turn, the State of California to set targets and track progress toward decreasing daily per capita urban water use throughout the State. The City's updated UWMP will establish targets for reducing its per capita water use and will present the City's plan for meeting the target numbers. It is the intent to make a Public Draft of the UWMP available for review on the City's website two weeks prior to the scheduled Public Hearing.  
The Public Hearing will be held at the regular meeting of the Los Banos City Council on Wednesday, June 1, 2011 at 7:00 p.m. in the Council Chambers at Los Banos City Hall located at 520 J Street, or as near as possible thereafter, at which time and place interested persons may appear and be heard thereon. Questions regarding the above-referenced item may be directed to Mark Fachin, Public Works Director/City Engineer at the Public Works Department, 411 Madison Avenue or at (209) 827-7056.  
All interested persons will be given an opportunity to comment on this item at the Public Hearing. In addition, written comments may be submitted to the City Council at or prior to the hearing, mailed to 411 Madison Avenue, Los Banos, CA 93635, Attention: Mark Fachin, Public Works Director/City Engineer. Please reference hearing title and date of hearing in any correspondence. If no comments are received prior to or on the above date, it will be assumed that no comment is being offered. The public is also informed that should the action by the City Council be challenged in court, court testimony may be limited to only those issues raised at the Public Hearing, or by written correspondence received at or prior to the Public Hearing, per Government Code Section 65009.  
It is the intention of the City to comply with the Americans with Disabilities Act (ADA). If you require special assistance beyond what is normally provided, the City will attempt to accommodate you in every reasonable manner. Please contact the City Clerk's Office at (209) 827-7000 at least 48 hours prior to the meeting to inform us of your particular needs.  
THE CITY OF LOS BANOS  
MARK FACHIN  
PUBLIC WORKS DIRECTOR/CITY ENGINEER  
Legal April 1 and 8, 2011  
LB-71426 April 1, 8, 2011



Proof of Publication – The Los Banos Enterprise, 1253 W. "I" Street, Los Banos, California – Telephone 826-3831  
Adjudged a newspaper of general circulation by court decree No. 33224 dated July 14, 1964

**Appendix B**  
**Resolution Adopting 2010 Urban Water Management Plan**

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**RESOLUTION NO. 5326**

**A RESOLUTION OF THE CITY COUNCIL OF THE  
CITY OF LOS BANOS ACCEPTING THE 2010  
URBAN WATER MANAGEMENT PLAN**

WHEREAS, the City of Los Banos held a Public Hearing on June 1, 2011 to receive comment regarding the 2010 Urban Water Management Plan; and

WHEREAS, the City Council of the City of Los Banos has considered public comment and closed the Public Hearing; and

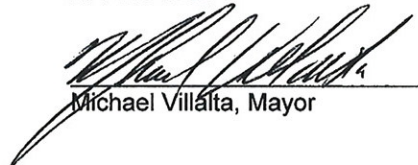
WHEREAS, the City Council of the City of Los Banos has reviewed and examined the 2010 Urban Water Management Plan.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Los Banos does hereby approve and accept the 2010 Urban Water Management Plan as presented.

The foregoing Resolution was introduced at a regular meeting of the City Council of the City of Los Banos held on the 1st day of June 2011, by Council Member Silveira who moved its adoption, which motion was duly seconded by Council Member Faria and the Resolution adopted by the following vote:

|         |   |
|---------|---|
| AYES:   | Council Members Faria, Silveira, Sousa, Stone, Mayor Villalta |
| NOES:   | None  |
| ABSENT: | None  |

APPROVED:

  
Michael Villalta, Mayor

ATTEST:

  
Lucille L. Mallonee, City Clerk

**Appendix C**  
**San Joaquin Valley Groundwater Basin,**  
**Delta-Mendota Subbasin Description**

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## **San Joaquin Valley Groundwater Basin**

### **Delta-Mendota Subbasin**

- Groundwater Subbasin Number: 5-22.07
- County: Stanislaus, Merced, Madera, Fresno
- Surface Area: 747,000 acres (1,170 square miles)

### **Basin Boundaries and Hydrology**

The San Joaquin Valley is surrounded on the west by the Coast Ranges, on the south by the San Emigdio and Tehachapi Mountains, on the east by the Sierra Nevada and on the north by the Sacramento-San Joaquin Delta and Sacramento Valley. The northern portion of the San Joaquin Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the valley is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin including the beds of the former Tulare, Buena Vista, and Kern Lakes.

The Delta-Mendota subbasin is bounded on the west by the Tertiary and older marine sediments of the Coast Ranges, and on the north by the Stanislaus/San Joaquin county line. The eastern boundary follows the San Joaquin River to Township 11 S, where it jogs eastward and follows the eastern boundary of Columbia Canal company to the San Joaquin River, then follows the Chowchilla Bypass and the eastern border of Farmer's Water District. It then trends southerly through Township 14S Range 15E on the eastern side of Fresno Slough, then follows the Tranquility ID boundary to its southern extremity. Heading northward, it follows the eastern, northern, and northwestern boundary of San Joaquin Valley – Westside Groundwater Subbasin (corresponding with Westlands Water District boundaries). Average annual precipitation is nine to 11 inches, increasing northwards.

### **Hydrogeologic Information**

The San Joaquin Valley represents the southern portion of the Great Central Valley of California. The San Joaquin Valley is a structural trough up to 200 miles long and 70 miles wide filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively. Continental deposits shed from the surrounding mountains form an alluvial wedge that thickens from the valley margins toward the axis of the structural trough. This depositional axis is below to slightly west of the series of rivers, lakes, sloughs, and marshes, which mark the current and historic axis of surface drainage in the San Joaquin Valley.

### **Water Bearing Formations**

The geologic units that comprise the ground water reservoir in the Delta-Mendota subbasin consist of the Tulare Formation, terrace deposits, alluvium, and flood-basin deposits. The Tulare Formation is composed of beds, lenses, and tongues of clay, sand, and gravel that have been alternately deposited in oxidizing and reducing environments (Hotchkiss 1971). The Corcoran Clay Member of the formation underlies the basin at depths ranging about 100 to 500 feet and acts as a confining bed (DWR 1981).

Terrace deposits of Pleistocene age lie up to several feet higher than present streambeds. They are composed of yellow, tan, and light-to-dark brown silt, sand, and gravel with a matrix that varies from sand to clay (Hotchkiss 1971). The water table generally lies below the bottom of the terrace deposits. However, the relatively large grain size of the terrace deposits suggests their value as possible recharge sites.

Alluvium is composed of interbedded, poorly to well-sorted clay, silt, sand, and gravel and is divided based on its degree of dissection and soil formation. The flood-basin deposits are generally composed of light-to-dark brown and gray clay, silt, sand, and organic materials with locally high concentrations of salts and alkali. Stream channel deposits of coarse sand and gravel are also included.

Groundwater in the Delta-Mendota subbasin occurs in three water-bearing zones. These include the lower zone, which contains confined fresh water in the lower section of the Tulare Formation, an upper zone which contains confined, semi-confined, and unconfined water in the upper section of the Tulare Formation and younger deposits, and a shallow zone which contains unconfined water within about 25 feet of the land surface (Davis 1959).

The estimated specific yield of this subbasin is 11.8 percent (based on DWR San Joaquin District internal data and Davis 1959). Land subsidence up to about 16 feet has occurred in the southern portion of the basin due to artesian head decline (Ireland 1964).

### ***Restrictive Structures***

Groundwater flow was historically northwestward parallel to the San Joaquin River (Hotchkiss 1971). Recent data (DWR 2000) show flow to the north and eastward, toward the San Joaquin River. Based on current and historical groundwater elevation maps, groundwater barriers do not appear to exist in the subbasin.

### ***Groundwater Level Trends***

Changes in groundwater levels are based on annual water level measurements by DWR and cooperators. Water level changes were evaluated by quarter township and computed through a custom DWR computer program using geostatistics (kriging). On average, the subbasin water level has increased by 2.2 feet from 1970 through 2000. The period from 1970 through 1985 showed a general increase, topping out in 1985 at 7.5 feet above the 1970 water level. The nine-year period from 1985 to 1994 saw general declines in groundwater levels, reaching back down to the 1970 groundwater level in 1994. Groundwater levels rose in 1995 to about 2.2 feet above the 1970 groundwater level. Water levels fluctuated around this value until 2000.

### ***Groundwater Storage***

Estimations of the total storage capacity of the subbasin and the amount of water in storage as of 1995 were calculated using an estimated specific yield of 11.8 percent and water levels collected by DWR and cooperators.



According to these calculations, the total storage capacity of this subbasin is estimated to be 30,400,000 af to a depth of 300 feet and 81,800,000 af to the base of fresh groundwater. These same calculations give an estimate of 26,600,000 af of groundwater to a depth of 300 feet stored in this subbasin as of 1995 (DWR 1995). According to published literature, the amount of stored groundwater in this subbasin as of 1961 is 51,000,000 af to a depth of  $\leq 1,000$  feet (Williamson 1989).

### **Groundwater Budget (Type B)**

Although a detailed budget was not available for this subbasin, an estimate of groundwater demand was calculated based on the 1990 normalized year and data on land and water use. A subsequent analysis was done by a DWR water budget spreadsheet to estimate overall applied water demands, agricultural groundwater pumpage, urban pumping demand and other extraction data.

Natural recharge is estimated to be 8,000 af. Artificial recharge and subsurface inflow are not determined. Applied water recharge is approximately 74,000 af. Annual urban and agricultural extractions estimated to be 17,000 af and 491,000 af, respectively. Other extractions are approximately 3,000 af, and subsurface outflow is not determined.

### **Groundwater Quality**

**Characterization.** The groundwater in this subbasin is characterized by mixed sulfate to bicarbonate types in the northern and central portion with areas of sodium chloride and sodium sulfate waters in the central and southern portion. TDS values range from 400 to 1,600 mg/L in the northern portion of the subbasin and from 730 to 6,000 mg/L in the southern portion of the subbasin (Hotchkiss 1971). The Department of Health Services (DHS), which monitors Title 22 water quality standards, reports TDS values in 44 public supply wells to range from 210 to 1,750 mg/L, with an average value of 770 mg/L. A typical range of water quality in wells is 700-1,000 mg/L.

**Impairments.** Shallow, saline groundwater occurs within about 10 feet of the ground surface over a large portion of the subbasin. There are also localized areas of high iron, fluoride, nitrate, and boron in the subbasin (Hotchkiss 1971).

### **Water Quality in Public Supply Wells**

| Constituent Group <sup>1</sup> | Number of wells sampled <sup>2</sup> | Number of wells with a concentration above an MCL <sup>3</sup> |
|--------------------------------|--------------------------------------|--|
| Inorganics – Primary           | 47                                   | 2  |
| Radiological                   | 47                                   | 1  |
| Nitrates                       | 51                                   | 4  |
| Pesticides                     | 47                                   | 1  |
| VOCs and SVOCs                 | 45                                   | 0  |
| Inorganics – Secondary         | 47                                   | 18   |



<sup>1</sup> A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).

<sup>2</sup> Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

<sup>3</sup> Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

## Well Characteristics

| Well yields (gal/min) |                   |                    |
|-----------------------|-------------------|--------------------|
| Municipal/Irrigation  | Range: 20 – 5,000 | Average: 800-2,000 |
| Total depths (ft)     |                   |                    |
| Domestic              |                   |                    |
| Municipal/Irrigation  | Range: 50 - 800   | Average: 400-600   |

## Active Monitoring Data

| Agency  | Parameter                           | Number of wells<br>/measurement frequency |
|---|-------------------------------------|---|
| DWR (incl. Cooperators)                           | Groundwater levels                  | 816 Semi-annually                         |
| DWR (incl. Cooperators)                           | Mineral, nutrient, & minor element. |   |
| Department of Health Services (incl. Cooperators) | Title 22 water quality              | 120 Varies                                |

## Basin Management

|                         |  |
|-------------------------|--|
| Groundwater management: | Panoche Water District is approximately 11 months into the AB3030 process and will be doing a joint plan with other districts and the county. San Luis and Delta-Mendota Water Authority North adopted an AB 3030 plan on December 5, 1997.  |
| Water agencies          |  |
| Public                  | Merced County, Fresno County, Broadview WD, Centinella WD, Central California ID, Davis WD, Del Puerto WD, Eagle Field WD, El Solyo WD, Farmers WD, Firebaugh Canal WD, Foothill WD, Fresno Slough WD, Grasslands WD, Hospital WD, Kern Canon WD, Laguna WD, Mercy Springs WD, Mustang WD, Oak Flat WD, Orestimba WD, Oro Loma WD, Pacheco WD, Panoche WD, Patterson WD, Romero WD, Salado WD, San Luis Canal Company, San Luis WD, Santa Nella C.WD, Sunflower WD, Tranquility ID, West Stanislaus ID, Widren WD, Quinto WD |
| Private                 | None.  |

## References Cited

- California Department of Water Resources (DWR). San Joaquin District. 995. Internal computer spreadsheet for 1990 normal computation of net water demand used in preparation of DWR Bulletin 160-93.
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- Davis, GH, Green, JH, Olmstead, SH, and Brown, DW. 1959. *Ground Water Conditions and Storage Capacity in the San Joaquin Valley, California*. US Geological Survey Water Supply Paper No. 1469. 287p.
- Hotchkiss, WR, and Balding, GO. 1971. *Geology, Hydrology, and Water Quality of the Tracy-Dos Palos Area, San Joaquin Valley, California*. USGS Open-File Report.
- Ireland, RL, Poland, JF, and Riley FS. 1984. *Land Subsidence in the San Joaquin Valley, California as of 1980*. USGS Professional Paper 437-I.
- Williamson, Alex K, Prudic, David E, and Swain, Lindsay A. 989. *Groundwater flow in the Central Valley, California*. US Geological Survey Professional Paper 1401-D. 127 p.

## Additional References

- California Department of Water Resources (DWR). 1994. Bulletin 160-93. *California Water Plan Update, Volume I*.
- \_\_\_\_\_. 1980. Bulletin 118-80. *Ground Water Basins in California*.

## Errata

- Updated groundwater management information and added hotlinks to applicable websites.  
(1/20/06)

## **Appendix D**

### **Draft Resolution to Declare a Water Shortage Emergency**

---

# ***Draft Resolution to Declare a Water Shortage Emergency***

**DRAFT RESOLUTION NO. \_\_\_\_\_**

## **RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LOS BANOS TO DECLARE A WATER SHORTAGE EMERGENCY**

---

**BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOS BANOS AS FOLLOWS:**

**WHEREAS**, PURSUANT to California Water Code Section 350 et seq., the Council has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared.

**WHEREAS**, the Council finds, determines and declares as follows:

- (a) The City is the water purveyor for the property owners and inhabitants of Los Banos;
- (b) The demand for water service is not expected to lessen.
- (c) When the combined total amount of water supply available to the City from all sources falls at or below the Stage 2 triggering levels described in the Water Shortage Contingency Plan in the current Urban Water Management Plan, the City will declare a water shortage emergency. The water supply would not be adequate to meet the ordinary demands and requirements of water consumers without depleting the City's water supply to the extent that there may be insufficient water for human consumption, sanitation, fire protection, and environmental requirements. This condition is likely to exist until additional water supply facilities can be constructed or until water system damage resulting from a disaster are repaired and normal water service is restored.

**NOW, THEREFORE, BE IT RESOLVED** that the City Council of the City of Los Banos hereby directs the City Manager to find, determine, declare and conclude that a water shortage emergency condition exists that threatens the adequacy of water supply, until the City's water supply is deemed adequate. After the declaration of a water shortage emergency, the City Manager is directed to determine the appropriate Water Shortage Stage and implement the City's Water Shortage Contingency Plan.

**FURTHERMORE**, the Council shall periodically conduct proceedings to determine additional restrictions and regulations and modifications to the Water Shortage Contingency Plan which may be necessary to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

**PASSED AND ADOPTED**, by the City Council of the City of Los Banos, County of Merced, State of California on \_\_\_\_\_

\_\_\_\_\_  
Name , Mayor

**ATTEST:**

\_\_\_\_\_  
Name , City Clerk

I, \_\_\_\_\_, City Clerk of the City Council of the City of Los Banos, do hereby certify that the foregoing resolution was duly adopted by the City Council of said City at a regular meeting held on \_\_\_\_\_, and that it was so adopted by the following vote:

**AYES:**

**NOES:**

**ABSTAIN:**

**ABSENT:**


\_\_\_\_\_  
Name , City Clerk

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**Appendix E**  
**City of Los Banos Public Utility Rates**

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## Public Utility Rates

The following is the current rate for services as of June 21, 2009. Questions regarding rates and or billing inquiries should be addressed to the Finance department at (209) 827-7000. You can also inquire in person at the Los Banos City Hall located at 520 "J" Street, Los Banos CA 93635.

### RESIDENTIAL: (MONTHLY)

**WATER:** \$16.34 Minimum base rate per month (Allowance of 1,500 cubic feet per month) + \$ 1.26 Overage cost per 100 cubic feet

For multiple family units greater than one unit on one meter: minimum rate plus \$5.81 per unit.

**WASTEWATER COLLECTION:** \$9.53 Flat charge monthly rate.

For multiple dwellings or trailer parks with a common sewer: \$9.53 + \$9.53 per each unit in excess of one.

**WASTEWATER TREATMENT:** \$4.15 Flat charge monthly rate.

For multiple dwellings or trailer parks with a common sewer: \$4.15 + \$4.15 per each unit in excess of one.

**DEPOSITS:** \$100.00 per account.

**METER TESTS:** \$25.00 Deposit, returnable if meter registers over two percent more than actual flow.

**LATE CHARGES:** 15% charge of billing for water, wastewater collection, wastewater treatment, and garbage disposal.

**DELINQUENCY ADMINISTRATION PROCESSING FEE:** \$35.00 for water, wastewater treatment, wastewater collection, and garbage disposal.

**RETURNED CHECK FEE:** \$35.00

### COMMERCIAL: (MONTHLY)

#### WATER:

For meters less than 1" - \$16.34 per month

For meters more than 1" to 1 1/2" - \$19.89 per month

For meters more than 1 1/2" to 2" - \$22.93 per month

For meters more than 2" to 3" - \$26.18 per month

For meters more than 3" to 4" - \$32.71 per month

For meters over 4" - the minimum monthly charge shall be as determined by the Public Works Department and the City Engineer.

Allowance amount = 1,500 cubic feet per month any usage over 1500 cubic feet during a one month reading cycle will be charged at \$1.26 per 100 cubic feet

#### WASTEWATER COLLECTION:

\$ 19.06 flat charge - monthly rate

For hotels & motels \$19.06 per month +

\$4.70 per room with kitchen facility

\$2.37 per room without kitchen facilities.

\$ .43 per student per month

\$ 9.53 for places of religious worship per month

#### WASTEWATER TREATMENT:

\$ .84 per student per month

\$ .71 per 100 cu ft of water used for standard industrial

\$ .91 per 100 cu ft of water used for bakeries, restaurants, dry cleaning, motion picture theaters, packing sheds, and dry process dairy products

\$ 1.19 per 100 cu ft of water used for meat products

**DEPOSITS:** \$100.00 per account.

**METER TESTS:** \$25.00 Deposit, returnable if meter registers over two percent more than actual flow.

**LATE CHARGES:** 15% charge of billing for water, wastewater treatment, wastewater collection, and garbage disposal.

**DELINQUENCY PROCESSING FEE:** \$35.00 for water, wastewater collection, wastewater treatment, and garbage disposal.

**RETURNED CHECK FEE:** \$35.00 per returned transaction.

### **Refuse Collection Rate Schedule Monthly Rates as of 2/21/2008**

#### **Residential Service**

Garbage Service includes a blue 96 gallon recycling cart, a green 96 gallon cart, and a choice of either a 64 gallon or 96 gray gallon cart for trash:

|                   |                |                |
|-------------------|----------------|----------------|
| Gray cart:        | 64 gallon Cart | 96 gallon Cart |
| Curb side pick up | 29.07          | 43.61          |

#### **Commercial Service**

##### **Pick ups per week**

| 64 gallon cart | 1     | 2      | 3      | 4      | 5      | 6-Daily |
|----------------|-------|--------|--------|--------|--------|---------|
| 1 Can          | 25.55 | 51.10  | 76.65  | 102.20 | 127.75 | 153.30  |
| 2 Cans         | 51.10 | 102.20 | 153.30 | 204.40 | 255.50 | 306.60  |
| 3 Cans         | 76.65 | 153.30 | 229.95 | 306.60 | 383.25 | 459.90  |

##### **Pick ups per week**

| 96 gallon cart | 1      | 2      | 3      | 4      | 5      | 6-Daily |
|----------------|--------|--------|--------|--------|--------|---------|
| 1 Can          | 38.33  | 76.66  | 114.99 | 153.32 | 191.65 | 229.98  |
| 2 Cans         | 76.66  | 153.32 | 229.98 | 306.64 | 383.30 | 459.96  |
| 3 Cans         | 114.99 | 229.98 | 344.97 | 459.96 | 574.95 | 689.94  |

##### **Pick ups per week**

| Bins           | 1      | 2      | 3      | 4      | 5       | 6-Daily |
|----------------|--------|--------|--------|--------|---------|---------|
| 1 Yard Bin     | 76.71  | 113.18 | 153.40 | 193.68 | 232.03  | 276.18  |
| 1 1/2 Yard Bin | 88.20  | 136.10 | 184.08 | 239.72 | 306.83  | 350.94  |
| 3 Yard Bin     | 143.86 | 260.77 | 377.82 | 473.69 | 563.86  | 646.27  |
| 6 Yard Bin     | 228.30 | 423.99 | 587.03 | 750.14 | 913.21  | 1076.25 |
| 8 Yard Bin     | 306.60 | 521.83 | 717.52 | 913.21 | 1092.60 | 1271.95 |

| Bins   | Delivery Charge | One Dump | Extra Dumps |
|--------|-----------------|----------|-------------|
| 3 YARD | 27.77           | 53.28    | 53.28       |
| 6 YARD | 27.77           | 84.55    | 84.55       |



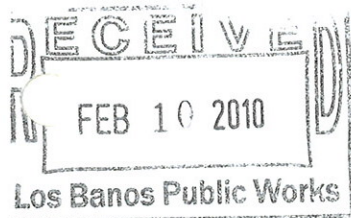
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## **Appendix F**

### **City of Los Banos Water Efficient Landscape Ordinance**

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## ORDINANCE NO. 1090

### AN ORDINANCE OF THE CITY OF LOS BANOS AMENDING TITLE 10, CHAPTER 2 OF THE LOS BANOS MUNICIPAL CODE TO "CITY OF LOS BANOS WATER EFFICIENT LANDSCAPE ORDINANCE IN ITS ENTIRETY

The City Council of the City of Los Banos does hereby ordain as follows:

Section 1. The City Council of the City of Los Banos does hereby amend Title 10, Chapter 2 of the Los Banos Municipal Code in its entirety to read as follows:

#### CITY OF LOS BANOS WATER EFFICIENT LANDSCAPE ORDINANCE

##### Sections:

- 10-2.01 Title and Purpose
- 10-2.01.01 Applicability
- 10-2.02 Definitions
- 10-2.03 Provisions for New Construction or Rehabilitated Landscapes
- 10-2.03.01 Compliance with Landscape Documentation Package
- 10-2.03.02 Penalties
- 10-2.03.03 Elements of the Landscape Documentation Package
- 10-2.03.04 Water Efficient Landscape Worksheet
- 10-2.03.05 Soil Management Report
- 10-2.03.06 Landscape Design Plan
- 10-2.03.07 Irrigation Design Plan
- 10-2.03.08 Grading Design Plan
- 10-2.03.09 Certificate of Completion
- 10-2.03.10 Irrigation Scheduling
- 10-2.03.11 Landscape and Irrigation Maintenance Schedule
- 10-2.03.12 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis
- 10-2.03.13 Irrigation Efficiency
- 10-2.03.14 Recycled Water
- 10-2.03.15 Stormwater Management
- 10-2.03.16 Public Education
- 10-2.03.17 Environmental Review
- 10-2.04 Provisions for Existing Landscapes
- 10-2.04.01 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis
- 10-2.04.02 Water Waste Prevention
- 10-2.05 Effective Precipitation
- 10-2.06 Reference Evapotranspiration (ET<sub>o</sub>) Table
- 10-2.07 Efficient Landscape Worksheet
- 10-2.08 Certificate of Completion Package
- 10-2.09 Fees
- 10-2.10 Inspections

##### § 10-2.01. Title and Purpose.

(a) This chapter shall be known as the "Los Banos Water Efficient Landscape Ordinance."

(b) Purpose. The State Legislature has found:

- (1) that the waters of the state are of limited supply and are subject to ever increasing demands;
- (2) that the continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future uses;
- (3) that it is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource;
- (4) that landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development; and

- (5) that landscape design, installation, maintenance and management can and should be water efficient; and
  - (6) that Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use.
- (c) Consistent with these legislative findings, the purpose of this ordinance is to:
- (1) promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;
  - (2) establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects;
  - (3) establish provisions for water management practices and water waste prevention for existing landscapes;
  - (4) use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount;
  - (5) promote the benefits of consistent landscape ordinances with neighboring local and regional agencies;
  - (6) encourage the use of economic incentives that promote the efficient use of water;
  - (7) encourage cooperation between the City of Los Banos and other local agencies to implement and enforce this ordinance.

Note: Authority cited: Section 65593, Government Code. Reference: Sections 65591, 65593, 65596, Government Code.

#### **§ 10-2.01.01 Applicability**

- (a) After January 1, 2010, this ordinance shall apply to all of the following landscape projects:
- (1) new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review;
  - (2) new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review;
  - (3) new construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building or landscape permit, plan check or design review;
  - (4) existing landscapes limited to Sections 10-2.04, 10-2.04.01 and 10-2.04.02; and
  - (5) cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 10-2.03.04, 10-2.03.11, and 10-2.03.12; and existing cemeteries are limited to Sections 10-2.04, 10-2.04.01, and 10-2.04.02.
- (b) This ordinance does not apply to:
- (1) registered local, state or federal historical sites;
  - (2) ecological restoration projects that do not require a permanent irrigation system;
  - (3) mined-land reclamation projects that do not require a permanent irrigation system; or
  - (4) plant collections, as part of botanical gardens and arboretums open to the public.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 10-2.02. Definitions.**

The terms used in this ordinance have the meaning set forth below:

- (a) "Applied Water" means the portion of water supplied by the irrigation system to the landscape.
- (b) "Automatic Irrigation Controller" means an automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.
- (c) "Backflow Prevention Device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.
- (d) "Certificate of Completion" means the document required under Section 10-2.03.09.
- (e) "Certified Irrigation Designer" means a person certified to design irrigation systems by an



accredited academic institution a professional trade organization or other program such as the US Environmental Protection Agency's Water Sense irrigation designer certification program and Irrigation Association's Certified Irrigation Designer program.

- (f) "Certified Landscape Irrigation Auditor" means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's Water Sense irrigation auditor certification program and Irrigation Association's Certified Landscape Irrigation Auditor program.
- (g) "Check Valve" or "anti-drain valve" means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
- (h) "Common Interest Developments" means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
- (i) "Conversion Factor (0.62)" means the number that converts acre-inches per acre per year to gallons per square foot per year.
- (j) "Drip Irrigation" means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- (k) "Ecological Restoration Project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- (l) "Effective Precipitation" or "Usable Rainfall" (Eppt) means the portion of total precipitation which becomes available for plant growth.
- (m) "Emitter" means a drip irrigation emission device that delivers water slowly from the system to the soil.
- (n) "Established Landscape" means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.
- (o) "Establishment Period of the Plants" means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.
- (p) "Estimated Total Water Use" (ETWU) means the total water used for the landscape as described in Section 10-2.03.04.
- (q) "ET Adjustment Factor" (ETAF) means a factor of 0.7, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape.  
A combined plant mix with a site-wide average of 0.5 is the basis of the plant factor portion of this calculation. For purposes of the ETAF, the average irrigation efficiency is 0.71.  
Therefore, the ET Adjustment Factor is  $(0.7) = (0.5 / 0.71)$ . ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing non-rehabilitated landscapes is 0.8.
- (r) "Evapotranspiration Rate" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
- (s) "Flow Rate" means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.
- (t) "Hardscapes" means any durable material (pervious and non-pervious).
- (u) "Homeowner-Provided Landscaping" means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.
- (v) "Hydrozone" means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

- (w) "Infiltration Rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
- (x) "Invasive Plant Species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. "Noxious weeds" means any weed designated by the Weed Control Regulations in the Weed Control Act and identified on a Regional District noxious weed control list. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.
- (y) "Irrigation Audit" means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule.
- (z) "Irrigation Efficiency" (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this ordinance is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.
- (aa) "Irrigation Survey" means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.
- (bb) "Irrigation Water Use Analysis" means an analysis of water use data based on meter readings and billing data.
- (cc) "Landscape Architect" means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.
- (dd) "Landscape Area" means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).
- (ee) "Landscape Contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
- (ff) "Landscape Documentation Package" means the documents required under Section 10-2.03.03.
- (gg) "Landscape Project" means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 10-2.01.01.
- (hh) "Lateral Line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
- (ii) Deleted
- (jj) "Local Water Purveyor" means any entity, including a public agency, city, county, or private water company that provides retail water service.
- (kk) "Low Volume Irrigation" means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- (ll) "Main Line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.
- (mm) "Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 10-2.03.04. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of



the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.

- (nn) "Microclimate" means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.
- (oo) "Mined-Land Reclamation Projects" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.
- (pp) "Mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.
- (qq) "New Construction" means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.
- (rr) "Operating Pressure" means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
- (ss) "Overhead Sprinkler Irrigation Systems" means systems that deliver water through the air (e.g., spray heads and rotors).
- (tt) "Overspray" means the irrigation water which is delivered beyond the target area.
- (uu) "Permit" means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.
- (vv) "Pervious" means any surface or material that allows the passage of water through the material and into the underlying soil.
- (ww) "Plant Factor" or "Plant Water Use Factor" is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for low water use plants is 0 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species".
- (xx) "Precipitation Rate" means the rate of application of water measured in inches per hour.
- (yy) "Project Applicant" means the individual or entity submitting a Landscape Documentation Package required under Section 10-2.03.03, to request a permit, plan check, or design review from the City of Los Banos. A project applicant may be the property owner or his or her designee.
- (zz) "Rain Sensor" or "Rain Sensing Shutoff Device" means a component which automatically suspends an irrigation event when it rains.
- (aaa) "Record Drawing" or "As-Built" means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.
- (bbb) "Recreational Area" means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.
- (ccc) "Recycled Water", "Reclaimed Water", or "Treated Sewage Effluent Water" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.
- (ddd) "Reference Evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year as represented in Section 10-2.06 and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well

watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowance so that regional differences in climate can be accommodated.

- (eee) "Rehabilitated Landscape" means any re-landscaping project that requires a permit, plan check, or design review, meets the requirements of Section 10-2.01.01, and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.
- (fff) "Runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.
- (ggg) "Soil Moisture Sensing Device" or "Soil Moisture Sensor" means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.
- (hhh) "Soil Texture" means the classification of soil based on its percentage of sand, silt, and clay.
- (iii) "Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.
- (jjj) "Sprinkler Head" means a device which delivers water through a nozzle.
- (kkk) "Static Water Pressure" means the pipeline or municipal water supply pressure when water is not flowing.
- (lll) "Station" means an area served by one valve or by a set of valves that operate simultaneously.
- (mmm) "Swing Joint" means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.
- (nnn) "Turf" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.
- (ooo) "Valve" means a device used to control the flow of water in the irrigation system.
- (ppp) "Water Conserving Plant Species" means a plant species identified as having a low plant factor.
- (qqq) "Water Feature" means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.
- (rrr) "Watering Window" means the time of day irrigation is allowed.
- (sss) "WUCOLS" means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000.

Note: Authority Cited: Section 65595, Government Code. Reference: Sections 65592, 65596, Government Code.



**§ 10-2.03. Provisions for New Construction or Rehabilitated Landscapes.**

- (a) The City of Los Banos may designate another agency to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 10-2.03.01 Compliance with Landscape Documentation Package.**

- (a) Prior to construction, the City of Los Banos shall:
- (1) provide the project applicant with the ordinance and procedures for permits, plan checks, or design reviews;
  - (2) review the Landscape Documentation Package submitted by the project applicant;
  - (3) approve or deny the Landscape Documentation Package;
  - (4) issue a permit or approve the plan check or design review for the project applicant; and
  - (5) upon approval of the Landscape Documentation Package, submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.
- (b) Prior to construction, the project applicant shall:
- (1) submit a Landscape Documentation Package to the City of Los Banos.
- (c) Upon approval of the Landscape Documentation Package by the City of Los Banos, the project applicant shall:
- (1) receive a permit or approval of the plan check or design review and record the date of the permit in the Certificate of Completion;
  - (2) submit a copy of the approved Landscape Documentation Package along with the record drawings, and any other information to the property owner or his/her designee; and
  - (3) submit a copy of the Water Efficient Landscape Worksheet to the City of Los Banos.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 10-2.03.02 Penalties.**

- (a) Title 1, Chapter 2, of this code established the administrative enforcement of remedies for violations of this Code and applicable State Codes. The general remedies include administrative abatement, summary abatement, civil penalties, administrative citations, recordation of notices of violation and mediation. The City of Los Banos may pursue any of these administrative remedies for violations of this chapter.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 10-2.03.03 Elements of the Landscape Documentation Package.**

- (a) The Landscape Documentation Package shall include the following six (6) elements:
- (1) project information;
    - (A) date
    - (B) project applicant
    - (C) project address (if available, parcel and/or lot number(s))
    - (D) total landscape area (square feet)
    - (E) project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
    - (F) water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well
    - (G) checklist of all documents in Landscape Documentation Package
    - (H) project contacts to include contact information for the project applicant and property owner
    - (I) applicant signature and date with statement, "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package".
  - (2) Water Efficient Landscape Worksheet;
    - (A) hydrozone information table
    - (B) water budget calculations
      1. Maximum Applied Water Allowance (MAWA)



## 2. Estimated Total Water Use (ETWU)

- (3) soil management report;
- (4) landscape design plan;
- (5) irrigation design plan; and
- (6) grading design plan.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

### § 10-2.03.04 Water Efficient Landscape Worksheet.

- (a) A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections (see sample worksheet in Section 10-2.07):

- (1) a hydrozone information table (see 10-2.07, Part A) for the landscape project; and
- (2) a water budget calculation (see Section 10-2.07, Part B) for the landscape project. For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values from the Reference Evapotranspiration Table in Section 10-2.06. For geographic areas not covered in Section 10-2.06, use data from other cities located nearby in the same reference evapotranspiration zone, as found in the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources, 1999.

- (b) Water budget calculations shall adhere to the following requirements:

- (1) The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
- (2) All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
- (3) All Special Landscape Areas shall be identified and their water use calculated as described below.
- (4) ETAF for Special Landscape Areas shall not exceed 1.0.

- (c) Maximum Applied Water Allowance

The Maximum Applied Water Allowance shall be calculated using the equation:

$$\text{MAWA} = (\text{ETo}) (0.62) [(0.7 \times \text{LA}) + (0.3 \times \text{SLA})]$$

The example calculations below are hypothetical to demonstrate proper use of the equations and do not represent an existing and/or planned landscape project. The ETo values used in these calculations are from the Reference Evapotranspiration Table in Section 10-2.06, for planning purposes only. For actual irrigation scheduling, automatic irrigation controllers are required and shall use current reference evapotranspiration data, such as from the California Irrigation Management Information System (CIMIS), other equivalent data, or soil moisture sensor data.

- (1) Example MAWA calculation: a hypothetical landscape project in Los Banos with an irrigated landscape area of 50,000 square feet without any Special Landscape Area (SLA= 0, no edible plants, recreational areas, or use of recycled water). To calculate MAWA, the annual reference evapotranspiration value for Los Banos is 50.0 inches as listed in the Reference Evapotranspiration Table in Section 10-2.06.

$$\text{MAWA} = (\text{ETo}) (0.62) [(0.7 \times \text{LA}) + (0.3 \times \text{SLA})]$$

MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Reference Evapotranspiration (inches per year)

0.62 = Conversion Factor (to gallons)

0.7 = ET Adjustment Factor (ETAF)

LA = Landscape Area including SLA (square feet)

0.3 = Additional Water Allowance for SLA

SLA = Special Landscape Area (square feet)

$$\text{MAWA} = (50.0 \text{ inches}) (0.62) [(0.7 \times 50,000 \text{ square feet}) + (0.3 \times 0)]$$

= 1,085,000 gallons per year

To convert from gallons per year to hundred-cubic-feet per year:

$$= 1,085,000 / 748 = 1,451 \text{ hundred-cubic-feet per year (100 cubic feet = 748 gallons)}$$

- (2) In this next hypothetical example, the landscape project in Los Banos has the same ETo value of 50.0 inches and a total landscape area of 50,000 square feet. Within the 50,000 square foot project, there is now a 2,000 square foot area planted with edible plants. This 2,000 square foot area is considered to be

a Special Landscape Area.

$$MAWA = (ET_o) (0.62) [(0.7 \times LA) + (0.3 \times SLA)]$$

$$MAWA = (50.0 \text{ inches}) (0.62) [(0.7 \times 50,000 \text{ square feet}) + (0.3 \times 2,000 \text{ square feet})]$$

$$= 31 \times [35,000 + 600] \text{ gallons per year}$$

$$= 31 \times 35,600 \text{ gallons per year}$$

$$= 1,103,600 \text{ gallons per year or } 1,475 \text{ hundred-cubic-feet per year}$$

(d) Estimated Total Water Use.

The Estimated Total Water Use shall be calculated using the equation below. The sum of the Estimated Total Water Use calculated for all hydrozones shall not exceed MAWA.

$$ETWU = (ET_o)(0.62) \left( \frac{PF \times HA}{IE} + SLA \right) \quad \text{Where:}$$

ETWU = Estimated Total Water Use per year

(gallons)

ET<sub>o</sub> = Reference Evapotranspiration (inches)

PF = Plant Factor from WUCOLS (see Section 10-2.02)

HA = Hydrozone Area [high, medium, and low water use areas] (square feet)

SLA = Special Landscape Area (square feet)

0.62 = Conversion Factor

IE = Irrigation Efficiency (minimum 0.71)

- (1) Example ETWU calculation: landscape area is 50,000 square feet; plant water use type, plant factor, and hydrozone area are shown in the table below. The ET<sub>o</sub> value is 50.0 inches per year. There are no Special Landscape Areas (recreational area, area permanently and solely dedicated to edible plants, and area irrigated with recycled water) in this example.

| Hydrozone | Plant Water Use Type(s) | Plant Factor (PF)* | Hydrozone Area (HA) (square feet) | PF x HA (square feet) |
|-----------|-------------------------|--------------------|-----------------------------------|-----------------------|
| 1         | High                    | 0.8                | 7,000                             | 5,600                 |
| 2         | High                    | 0.7                | 10,000                            | 7,000                 |
| 3         | Medium                  | 0.5                | 16,000                            | 8,000                 |
| 4         | Low                     | 0.3                | 7,000                             | 2,100                 |
| 5         | Low                     | 0.2                | 10,000                            | 2,000                 |
|           |                         |                    | Sum                               | 24,700                |

\*Plant Factor from WUCOLS

$$ETWU = (50.0)(0.62) \left( \frac{24,700}{0.71} + 0 \right)$$

$$= 1,078,459 \text{ gallons per year}$$

Compare ETWU with MAWA: For this example MAWA = (50.0) (0.62) [(0.7 x 50,000) + (0.3 x 0)] = 1,085,000 gallons per year. The ETWU (1,078,459 gallons per year) is less than MAWA (1,085,000 gallons per year). In this example, the water budget complies with the MAWA.

- (2) Example ETWU calculation: total landscape area is 50,000 square feet, 2,000 square feet of which is planted with edible plants. The edible plant area is considered a Special Landscape Area (SLA). The reference evapotranspiration value is 50.0 inches per year. The plant type, plant factor, and hydrozone area are shown in the table below.

| Hydrozone | Plant Water Use Type(s) | Plant Factor (PF)* | Hydrozone Area (HA) (square Feet) | PF x HA (square feet) |
|-----------|-------------------------|--------------------|-----------------------------------|-----------------------|
| 1         | High                    | 0.8                | 7,000                             | 5,600                 |
| 2         | High                    | 0.7                | 9,000                             | 6,300                 |
| 3         | Medium                  | 0.5                | 15,000                            | 7,500                 |
| 4         | Low                     | 0.3                | 7,000                             | 2,100                 |
| 5         | Low                     | 0.2                | 10,000                            | 2,000                 |
|           |                         |                    | Sum                               | 23,500                |
| 6         | SLA                     | 1.0                | 2,000                             | 2,000                 |

\*Plant Factor from WUCOLS



$$ETWU = (50.0)(0.62) \left( \frac{23,500}{0.71} + 2,000 \right)$$

$$= (31) (33,099 + 2,000)$$

$$= 1,088,069 \text{ gallons per year}$$

Compare ETWU with MAWA. For this example:  
MAWA = (50.0) (0.62) [(0.7 x 50,000) + (0.3 x 2,000)]  
= 31 x [35,000 + 600]  
= 31 x 35,600  
= 1,103,600 gallons per year

The ETWU (1,088,069 gallons per year) is less than MAWA (1,103,600 gallons per year).  
For this example, the water budget complies with the MAWA.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 10-2.03.05 Soil Management Report.**

- (a) In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:
- (1) Submit soil samples to a laboratory for analysis and recommendations.
    - (A) Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
    - (B) The soil analysis may include:
      1. soil texture;
      2. infiltration rate determined by laboratory test or soil texture infiltration rate table;
      3. pH;
      4. total soluble salts;
      5. sodium;
      6. percent organic matter; and
      7. recommendations.
  - (2) The project applicant, or his/her designee, shall comply with one of the following:
    - (A) If significant mass grading is not planned, the soil analysis report shall be submitted to the City of Los Banos as part of the Landscape Documentation Package; or
    - (B) If significant mass grading is planned, the soil analysis report shall be submitted to the City of Los Banos as part of the Certificate of Completion.
  - (3) The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design plans.
  - (4) The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the City of Los Banos with Certificate of Completion.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 10-2.03.06 Landscape Design Plan.**

- (a) For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.
- (1) Plant Material
    - (A) Any plant may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance. To encourage the efficient use of water, the following is highly recommended:
      1. protection and preservation of native species and natural vegetation;
      2. selection of water-conserving plant and turf species;
      3. selection of plants based on disease and pest resistance;
      4. selection of trees based on approved local tree and tree shading guidelines as specified in the City of Los Banos Standards and Specifications; and

5. selection of plants from approved local and regional landscape program plant lists as specified in the City of Los Banos Standards and Specifications.
- (B) Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in Section 10-2.03.07(a)(2)(D).
- (C) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:
  1. use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;
  2. recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines]; and
  3. consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
- (D) Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
- (E) A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.
- (F) The use of invasive and/or noxious plant species is strongly discouraged.
- (G) The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.
- (2) Water Features
  - (A) Recirculating water systems shall be used for water features.
  - (B) Where available, recycled water shall be used as a source for decorative water features.
  - (C) Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.
  - (D) Pool and spa covers are highly recommended.
- (3) Mulch and Amendments
  - (A) A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.
  - (B) Stabilizing mulching products shall be used on slopes.
  - (C) The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.
  - (D) Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 10-2.03.05)
- (b) The landscape design plan, at a minimum, shall:
  - (1) delineate and label each hydrozone by number, letter, or other method;
  - (2) identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
  - (3) identify recreational areas;
  - (4) identify areas permanently and solely dedicated to edible plants;
  - (5) identify areas irrigated with recycled water;
  - (6) identify type of mulch and application depth;
  - (7) identify soil amendments, type, and quantity;
  - (8) identify type and surface area of water features;
  - (9) identify hardscapes (pervious and non-pervious);
  - (10) identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:



- (A) infiltration beds, swales, and basins that allow water to collect and soak into the ground;
  - (B) constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and
  - (C) pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.
- (11) identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);
  - (12) contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan"; and
  - (13) bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code and Section 1351, Civil Code.

#### **§ 10-2.03.07 Irrigation Design Plan.**

- (a) For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.
  - (1) System
    - (A) Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.
    - (B) Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data shall be required for irrigation scheduling in all irrigation systems.
    - (C) The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
      - 1. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.
      - 2. Static water pressure, dynamic or operating pressure, and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.
    - (D) Sensors (rain, freeze, wind), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.
    - (E) Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.
    - (F) Approved backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the City of Los Banos Standards and Specifications for additional backflow prevention requirements.
    - (G) High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.
    - (H) The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.
    - (I) Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

- (J) The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
- (K) The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 10-2.03.04 regarding the Maximum Applied Water Allowance.
- (L) It is highly recommended that the project applicant inquire with the Public Works Department about peak water operating demands (on the water supply system) and water restrictions that may impact the effectiveness of the irrigation system.
- (M) In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
- (N) Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- (O) Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
- (P) Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.
- (Q) Check valves or anti-drain valves are required for all irrigation systems.
- (R) Narrow or irregularly shaped areas, including turf, less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system.
- (S) Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch or City approved material. These restrictions may be modified if:
  - 1. the landscape area is adjacent to permeable surfacing and no runoff occurs; or
  - 2. the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
  - 3. the irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in Section 10-2.03.07(a)(1)(H). Prevention of overspray and runoff must be confirmed during the irrigation audit.
- (T) Slopes greater than 25% shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

(2) Hydrozone

- (A) Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
  - (B) Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
  - (C) Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf.
  - (D) Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:
    - 1. plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
    - 2. the plant factor of the higher water using plant is used for calculations.
  - (E) Individual hydrozones that mix high and low water use plants shall be permitted.
  - (F) On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table (10-2.07 Part A). This table can also assist with The City of Los Banos irrigation audit and programming the controller.
- (b) The irrigation design plan, at a minimum, shall contain:
- (1) location and size of separate water meters for landscape;
  - (2) location, type and size of all components of the irrigation system, including



- controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;
- (3) static water pressure at the point of connection to the public water supply;
- (4) flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
- (5) recycled water irrigation systems as specified in Section 10-2.03.14;
- (6) the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan"; and
- (7) the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 10-2.03.08 Grading Design Plan.**

- (a) For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading plan shall be submitted as part of the Landscape Documentation Package. A comprehensive grading plan prepared by a civil engineer for other local agency permits satisfies this requirement.
  - (1) The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:
    - (A) height of graded slopes;
    - (B) drainage patterns;
    - (C) pad elevations;
    - (D) finish grade; and
    - (E) stormwater retention improvements, if applicable.
  - (2) To prevent excessive erosion and runoff, it is highly recommended that project applicants:
    - (A) grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;
    - (B) avoid disruption of natural drainage patterns and undisturbed soil; and
    - (C) avoid soil compaction in landscape areas.
  - (3) The grading design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan" and shall bear the signature of a licensed professional as authorized by law.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 10-2.03.09 Certificate of Completion.**

- (a) The Certificate of Completion (Section 10-2.08 for a sample certificate) shall include the following six (6) elements:
  - (1) project information sheet that contains:
    - (A) date;
    - (B) project name;
    - (C) project applicant name, telephone, and mailing address;
    - (D) project address and location; and
    - (E) property owner name, telephone, and mailing address;
  - (2) certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package;
    - (A) where there have been significant changes made in the field during construction, these "as-built" or record drawings shall be included with the certification;
  - (3) irrigation scheduling parameters used to set the controller (see Section 10-2.03.10);
  - (4) landscape and irrigation maintenance schedule (see Section 10-2.03.11);
  - (5) irrigation audit report (see Section 10-2.03.12); and
  - (6) soil analysis report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of soil report recommendations (see Section 10-2.03.05).

- (b) The project applicant shall:
  - (1) submit the signed Certificate of Completion to the City of Los Banos for review;
  - (2) ensure that copies of the approved Certificate of Completion are submitted to the Public Works Department and property owner or his or her designee.
- (c) The City of Los Banos shall:
  - (1) receive the signed Certificate of Completion from the project applicant;
  - (2) approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the City of Los Banos shall provide information to the project applicant regarding reapplication, appeal, or other assistance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 10-2.03.10 Irrigation Scheduling.**

- (a) For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:
  - (1) Irrigation scheduling shall be regulated by automatic irrigation controllers.
  - (2) Irrigation shall be restricted to certain days and times. It shall be unlawful for any person to use City supplied water for irrigation of lawn, landscaping, et cetera, between the hours of 11:00 A.M. and 7:00 P.M. on any day of the week, beginning May 1, through September 30. Usage of water for the aforesaid purposes during allowable shall be restricted to Sundays, Wednesdays, and Fridays of each week on the even numbered side of any street; and Tuesdays, Thursdays, and Saturdays of each week on the odd numbered side of any street. Watering shall be prohibited on Mondays. "Even-numbered side of any street" shall mean that side of this street on which the house numbers end in even figures. "Odd-numbered side of any street" shall mean that side of the street on which the house numbers end in odd figures. New plantings, such as new lawns, ground coverings, or bedding plants may be watered every day providing the following conditions are met:
    - (A) New lawns, ground coverings, or bedding plants shall not include reseeded of existing lawns or replacement of existing ground cover, or bedding plants, and
    - (B) New lawns, ground coverings, or bedding plants shall be considered new for a period of one (1) year from planting date.
  - (3) For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.
  - (4) Parameters used to set the automatic controller shall be developed and submitted for each of the following:
    - (A) the plant establishment period;
    - (B) the established landscape; and
    - (C) temporarily irrigated areas.
  - (5) Each irrigation schedule shall consider for each station all of the following that apply:
    - (A) irrigation interval (days between irrigation);
    - (B) irrigation run times (hours or minutes per irrigation event to avoid runoff);
    - (C) number of cycle starts required for each irrigation event to avoid runoff;
    - (D) amount of applied water scheduled to be applied on a monthly basis;
    - (E) application rate setting;
    - (F) root depth setting;
    - (G) plant type setting;
    - (H) soil type;
    - (I) slope factor setting;
    - (J) shade factor setting; and
    - (K) irrigation uniformity or efficiency setting.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 10-2.03.11 Landscape and Irrigation Maintenance Schedule.**

- (a) Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.



- (b) A regular maintenance schedule shall include, but not be limited to, routine inspection; adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing and obstruction to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- (c) Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.
- (d) A project applicant is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 10-2.03.12 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.**

- (a) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.
- (b) For new construction and rehabilitated landscape projects installed after January 1, 2010, as described in Section 10-2.01.01:
  - (1) the project applicant shall submit an irrigation audit report with the Certificate of Completion to the City of Los Banos that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule;
  - (2) the City of Los Banos shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 10-2.03.13 Irrigation Efficiency.**

- (a) For the purpose of determining Maximum Applied Water Allowance, average irrigation efficiency is assumed to be 0.71. Irrigation systems shall be designed, maintained, and managed to meet or exceed an average landscape irrigation efficiency of 0.71.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 10-2.03.14 Recycled Water.**

- (a) The installation of recycled water irrigation systems shall allow for the current and future use of recycled water, unless a written exemption has been granted as described in Section 10-2.03.14(b).
- (b) Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the local water purveyor stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future.
- (c) All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.
- (d) Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for Special Landscape Areas shall not exceed 1.0.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 10-2.03.15 Stormwater Management.**

- (a) Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration are encouraged.
- (b) Project applicants shall refer to the City of Los Banos Public Works Department for information on any applicable stormwater ordinances and stormwater management plans.

- (c) Rain gardens, cisterns, and other landscapes features and practices that increase rainwater capture and create opportunities for infiltration and/or onsite storage are recommended.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 10-2.03.16 Public Education.**

- (a) Publications. Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.
  - (1) The City of Los Banos shall provide information to owners of new, single-family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes.
- (b) Model Homes. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this ordinance.
  - (1) Signs shall be used to identify the model as an example of water efficient landscape featuring elements such as hydrozones, irrigation equipment, and others that contribute to the overall water efficient theme.
  - (2) Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 10-2.03.17 Environmental Review.**

- (a) The City of Los Banos must comply with the California Environmental Quality Act (CEQA), as appropriate.

Note: Authority cited: Section 21082, Public Resources Code. Reference: Sections 21080, 21082, Public Resources Code.

#### **§ 10-2.04 Provisions for Existing Landscapes.**

- (a) The City of Los Banos may designate another agency, such as a water purveyor, to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

##### **§ 10-2.04.01 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.**

- (a) This section, 10-2.04.01, shall apply to all existing landscapes that were installed before January 1, 2010 and are over one acre in size.
  - (1) For all landscapes in 10-2.04.01(a) that have a water meter, the City of Los Banos shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the Maximum Applied Water Allowance for existing landscapes. The Maximum Applied Water Allowance for existing landscapes shall be calculated as:  
$$MAWA = (0.8) (ET_o)(LA)(0.62).$$
  - (2) For all landscapes in 10-2.04.01(a), that do not have a meter, the City of Los Banos shall administer programs that may include, but not be limited to, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.
- (b) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

##### **§ 10-4.02.02 Water Waste Prevention.**

- (a) The City of Los Banos shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated



areas, walks, roadways, parking lots, or structures. No person shall allow water to run or waste from one's property onto a City street or right-of-way to such an extent that water shall flow in the street/gutter excessively beyond the frontage of the property occupied by such person; nor to flow excessively off the occupied property into the street/gutter; nor to continuously fall upon a public right of way or adjoining property such as to significantly contribute to gutter flow; nor to excessively flow onto or continuously upon adjoining properties or an alley.

Penalties for violation of these prohibitions are set forth Los Banos Municipal Code Title 4 Chapter 11.

- (b) Restrictions regarding overspray and runoff may be modified if:
- (1) the landscape area is adjacent to permeable surfacing and no runoff occurs; or
  - (2) the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

Note: Authority cited: Section 65594, Government Code. Reference: Section 65596, Government Code.

#### § 10-2.05 Effective Precipitation.

- (a) A local agency may consider Effective Precipitation (25% of annual precipitation) in tracking water use and may use the following equation to calculate Maximum Applied Water Allowance:  $MAWA = (ET_o - Eppt) (0.62) [(0.7 \times LA) + (0.3 \times SLA)]$ .

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### § 10-02.06 Reference Evapotranspiration (ET<sub>o</sub>) Table\*.

- (a) The following is the reference Evapotranspiration (ET<sub>o</sub>) Table for the City of Los Banos:

|           | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual<br>ET <sub>o</sub> |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------------------|
| Los Banos | 1.0 | 1.5 | 3.2 | 4.7 | 6.1 | 7.4 | 8.2 | 7.0 | 5.3 | 3.4 | 1.4 | 0.7 | 50.0                      |

\* The values in this table were derived from:

- 1) California Irrigation Management Information System (CIMIS);
- 2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999; and
- 3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922,
- 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426

#### § 10-02.07 Water Efficient Landscape Worksheet.

##### WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package. Please complete all sections (A and B) of the worksheet.

##### PART A. HYDROZONE INFORMATION TABLE

Please complete the hydrozone table(s) for each hydrozone. Use as many tables as necessary to provide the square footage of landscape area per hydrozone.

| Hydrozone* | Zone or Valve | Irrigation Method** | Area (Sq.Ft.) | % of Landscape Area |
|------------|---------------|---------------------|---------------|---------------------|
|            |               |                     |               |                     |
|            |               |                     |               |                     |
|            |               |                     |               |                     |
|            |               |                     |               |                     |
|            |               |                     |               |                     |
|            |               |                     |               |                     |
|            |               |                     |               |                     |
|            |               |                     |               |                     |
|            |               |                     |               |                     |
| Total      |               |                     |               | 100%                |

## PART B. WATER BUDGET CALCULATIONS

### Part B1. Maximum Applied Water Allowance (MAWA)

The project's Maximum Applied Water Allowance shall be calculated using this equation:

$$\text{MAWA} = (\text{ETo}) (0.62) [(0.7 \times \text{LA}) + (0.3 \times \text{SLA})]$$

where:

- MAWA = Maximum Applied Water Allowance (gallons per year)
- ETo = Reference Evapotranspiration from Appendix A (inches per year)
- 0.7 = ET Adjustment Factor (ETAF)
- LA = Landscaped Area includes Special Landscape Area (square feet)
- 0.62 = Conversion factor (to gallons per square foot)
- SLA = Portion of the landscape area identified as Special Landscape Area (square feet)
- 0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3)

Maximum Applied Water Allowance = \_\_\_\_\_ gallons per year

Show calculations.

### Effective Precipitation (Eppt)

If considering Effective Precipitation, use 25% of annual precipitation. Use the following equation to calculate Maximum Applied Water Allowance:

$$\text{MAWA} = (\text{ETo} - \text{Eppt}) (0.62) [(0.7 \times \text{LA}) + (0.3 \times \text{SLA})]$$

Maximum Applied Water Allowance = \_\_\_\_\_ gallons per year

Show calculations.

The project's Estimated Total Water Use is calculated using the following formula:

$$\text{ETWU} = (\text{ETo}) (0.62) \left( \frac{\text{PF} \times \text{HA}}{\text{IE}} + \text{SLA} \right)$$

where:

- ETWU = Estimated total water use per year (gallons per year)
- ETo = Reference Evapotranspiration (inches per year)
- PF = Plant Factor from WUCOLS (see Definitions)
- HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
- SLA = Special Landscape Area (square feet)
- 0.62 = Conversion Factor (to gallons per square foot)
- IE = Irrigation Efficiency (minimum 0.71)

### Hydrozone Table for Calculating ETWU

Please complete the hydrozone table(s). Use as many tables as necessary.

| Hydrozone | Plant Water Use Type(s) | Plant Factor (PF) | Area (HA) (square feet) | PF x HA (square feet) | Estimated Water | Total Use = |
|-----------|-------------------------|-------------------|-------------------------|-----------------------|-----------------|-------------|
|           |                         |                   |                         |                       |                 |             |
|           |                         |                   |                         |                       |                 |             |
|           |                         |                   |                         |                       |                 |             |
|           |                         |                   |                         |                       |                 |             |
|           |                         |                   |                         |                       |                 |             |
|           |                         |                   | Sum                     |                       |                 |             |
|           | SLA                     |                   |                         |                       |                 |             |

\_\_\_\_\_ gallons

Show calculations.

### § 10-2.08 Certificate of Completion Package.

#### CERTIFICATE OF COMPLETION

This certificate is filled out by the project applicant upon completion of the landscape project.

#### PART 1. PROJECT INFORMATION SHEET

|                           |       |                |  |
|---------------------------|-------|----------------|--|
| Date                      |       |                |  |
| Project Name              |       |                |  |
| Name of Project Applicant |       | Telephone No.  |  |
|                           |       | Fax No.        |  |
| Title                     |       | Email Address  |  |
| Company                   |       | Street Address |  |
| City                      | State | Zip Code       |  |

#### Project Address and Location:

|                |          |  |  |
|----------------|----------|--|--|
| Street Address |          | Parcel, tract or lot number, if available. |  |
| City           |          | Latitude/Longitude (optional)              |  |
| State          | Zip Code |  |  |

#### Property Owner or his/her designee:

|         |       |                |  |
|---------|-------|----------------|--|
| Name    |       | Telephone No.  |  |
|         |       | Fax No.        |  |
| Title   |       | Email Address  |  |
| Company |       | Street Address |  |
| City    | State | Zip Code       |  |

#### Property Owner

"I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and the Certificate of Completion and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule."

Property Owner Signature \_\_\_\_\_

Date \_\_\_\_\_

Please answer the questions below:

1. Date the Landscape Documentation Package was submitted to the local agency \_\_\_\_\_
2. Date the Landscape Documentation Package was approved by the local agency \_\_\_\_\_
3. Date that a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to the local water purveyor \_\_\_\_\_



**PART 2. CERTIFICATION OF INSTALLATION ACCORDING TO THE LANDSCAPE DOCUMENTATION PACKAGE**

"I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package."

|                                  |                |          |
|----------------------------------|----------------|----------|
| Signature*                       | Date           |          |
| Name (print)                     | Telephone No.  |          |
|                                  | Fax No.        |          |
| Title                            | Email Address  |          |
| License No. or Certification No. |                |          |
| Company                          | Street Address |          |
| City                             | State          | Zip Code |

\*Signer of the landscape design plan, signer of the irrigation plan, or a licensed landscape contractor.

**PART 3. IRRIGATION SCHEDULING**

Attach parameters for setting the irrigation schedule on controller per ordinance Section 10-2.03.10.

**PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE**

Attach schedule of Landscape and Irrigation Maintenance per ordinance Section 10-2.03.11.

**PART 5. LANDSCAPE IRRIGATION AUDIT REPORT**

Attach Landscape Irrigation Audit Report per ordinance Section 10-2.03.12.

**PART 6. SOIL MANAGEMENT REPORT**

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per ordinance Section 10-2.03.05.

Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 10-2.03.05.

**§ 10-2.09 Fees.**

Landscape and irrigation plan review and inspection fees shall be paid to the City at Public Works Department when landscape and irrigation plans are submitted. The amount of the fee is established by City Council resolution as recommended by the Parks and Recreation Commission.

**§ 10-2.10 Inspection.**

Upon installation of landscaping and irrigation systems, the installer must contact the Public Works Department to request an inspection for compliance with the approved plans before a certificate of occupancy will be issued by the Public Works Department.

Section 2. To the extent that the terms and provisions of this Ordinance may be inconsistent or in conflict with the terms or conditions of any prior City ordinance, motion, resolution, rule or regulation governing the same subject, the terms of this Ordinance shall prevail with respect to the subject matter thereof and such inconsistent or conflicting provisions of prior ordinances, motions, resolutions, rules or regulations are hereby repealed.

Section 3. If any section, subsection, subdivision, paragraph, sentence, clause or phrase added by this Ordinance, or any part thereof, is for any reason held to be unconstitutional or invalid or ineffective by any court of competent jurisdiction, such decision shall not affect the validity or effectiveness of the remaining portions of this Ordinance or any part thereof. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause or phrase thereof irrespective of the fact that any one or more subsections, subdivisions, paragraphs, sentences, clauses or phrases are declared unconstitutional, invalid or ineffective.

Section 4. This Ordinance shall go into effect and be in full force and operation thirty (30) days after its final passage and adoption. The City Clerk shall certify to the

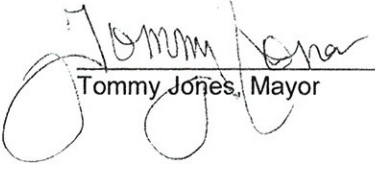
adoption of this Ordinance and cause the same to be posted and published once within fifteen days after passage and adoption as may be required by law; or, in the alternative the City Clerk may cause to be published a summary of this Ordinance and a certified copy of the text of this Ordinance shall be posted in the Office of the City Clerk five days prior to the date of adoption of this Ordinance; and, within fifteen days after adoption, the City Clerk shall cause to be published, the aforementioned summary and shall post a certified copy of this Ordinance, together with the vote for and against the same, in the Office of the City Clerk.

Introduced by Council Member Sousa and seconded by Council Member Villalta on the 20<sup>th</sup> day of January 2010.

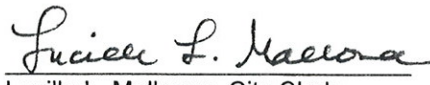
Passed on the 3<sup>rd</sup> day of February 2010 by the following vote:

AYES: Council Members Faria, Sousa, Stone, Villalta, Mayor Jones  
NOES: None  
ABSENT: None

APPROVED:

  
Tommy Jones, Mayor

ATTEST:

  
Lucille L. Mallonee, City Clerk



**Appendix G**  
**Water Conservation Materials**

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City of  
**Los Banos**  
*At the Crossroads of California*  
**Public Works Department**

411 Madison Avenue  
Los Banos, Ca. 93635

Phone: (209) 827-7056  
FAX: (209) 827-7069  
[www.losbanos.org](http://www.losbanos.org)

To: Residents of the City of Los Banos:

**Water Conservation Program**  
**May 1 through September 30, 2010**

As we prepare to begin this year's Water Conservation Program, I would like to take this opportunity to thank everyone for the achievements of past years. Once again, there will be no changes in our program. The schedule is as follows:

- If your street address ends with an **odd** number, your watering days are Tuesday, Thursday and Saturday.
- If your street address ends with an **even** number, your watering days are Sunday, Wednesday and Friday.
- No watering is allowed on Mondays.
- No watering is allowed between the hours of 11:00A.M. and 7:00P.M., beginning May 1, through September 30.
- New plantings, such as new lawns, ground covering or bedding plants may be watered every day before 11:00A.M. or after 7:00P.M., providing the following conditions are met:



*New lawns, ground covering and  
bedding plants shall be considered new for a period of one (1)  
year from planting date.*



Along with helping to conserve water, you may also help to decrease the pollutants such as oil, dirt, chemicals and fertilizers in storm drain runoff water. This can be done by properly using, storing and disposing of chemicals and fertilizers, and sweeping sidewalks and driveways instead of using a hose. The City of Los Banos now offers curbside recycling of motor oil & oil filters! Thank you for past and future water conservation and safe water practices.

**If you have questions regarding these programs, or wish to have your sprinkler timer programmed free of charge, please call the Public Works Department at (209) 827-7056.**

Sincerely,

*Mark Fachin*

Mark Fachin, P.E.  
Public Works Director/City Engineer



# The City of Los Banos asks you to... "Be Water Wise;"

**Water Conservation Program Runs From**

**May 1<sup>st</sup> through September 30, 2011**

Your watering schedule depends on the last number  
of your street address!

## ODD NUMBERS

### WATER ON:

TUESDAY

THURSDAY

SATURDAY

## EVEN NUMBERS

### WATER ON:

SUNDAY

WEDNESDAY

FRIDAY

Please do not water between the hours of 11:00am and 7:00pm!

For more information please call 827-7056

**PLEASE, NO WATERING ON MONDAYS!**



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## Water Conservation

### New 2010 Water Conservation Sheet

#### Download now!

If your street address ends with an odd number, your watering days are Tuesday, Thursday and Saturday. If your street address ends with an even number, your watering days are Sunday, Wednesday and Friday. No watering is allowed on Mondays. No watering is allowed between the hours of 11:00 A.M. and 7:00 P.M. beginning May 1 through and including September 30.

New plantings such as new lawns, ground coverings, or bedding plants may be watered every day between the hours of 7:00 P.M. and 11:00 A.M., providing the following conditions are met:

a) New lawns, ground coverings, and bedding plants shall be considered new for a period of (1) year from planting date.

### What does the odd/even watering system accomplish?

When local water customers follow the program, approximately one-half of the users in Los Banos will be watering their lawns at one time. This provides us with more water for the fire flows and will allow users the opportunity to become more aware of their watering systems.

### What does the City consider a wasteful use of water?

- Over-watering where the water has created a sponge-like effect on the property.
- Water that is running down the street or onto the sidewalks.
- Watering in the rain.
- Watering on a day that is not allotted to your address number.
- Sprinklers that are consistently watering the sidewalk instead of the yard.
- Water customers who appear to be ignoring the City's watering program.

### What are the deterrents and how do they work?

If a City employee notices water waste occurring, then he (or she) will issue a warning notice, along with an odd/even watering program reminder card. If the problem persists, the customer will be cited with a \$15 fine payable to the City of Los Banos. The fine will be increased by 150 percent with each subsequent citation.

### Can a resident report water waste?

Yes. The Public Works Department welcomes and encourages the involvement of residents. We hope the residents of Los Banos will help each other to conserve water. If you notice water waste, please do not hesitate to call the Public Works Department, (209) 827-7056.

While we realize these practices may be difficult for some, the odd/even watering system will be strictly enforced to ensure its success. The aim of the conservation program is to stop water waste.

The Public Works Department has a supply of pamphlets that feature ideas on water conservation. We also have a supply of printed cards that can be used as a reminder of your odd and even watering days. If you are interested in receiving this information, please let us know.

Sincerely,  
Mark Fachin  
Public Works Director



# PLEASE HELP TO KEEP OUR WATER CLEAN

The City of Los Banos now offers curb side pick up of used oil and used oil filters !

## Tips to decrease harmful run-offs:

- ~Use car care products (soaps, etc.) on non-paved surfaces, like grass or gravel.
- ~Pick up pet waste and dispose of it in the trash. (Please keep pet waste out of the storm drain.)
- ~Avoid over-watering lawns. Run-off may contain fertilizers and pesticides.

FOR MORE INFORMATION PLEASE CALL CITY OF BANOS  
PUBLIC WORKS AT 827-7056



Water is a natural resource that we must learn to conserve for our future. In the City of Los Banos, residents help to save millions of gallons of water each year. The 2005 City of Los Banos Water Conservation Program will be in effect from May 1<sup>st</sup> through September 30<sup>th</sup>. Watering days for residents with street addresses ending in odd numbers will be Tuesday, Thursday and Saturday. Addresses ending in even numbers will water on Sunday, Wednesday and Friday. No watering will be allowed from 11:00AM to 7:00PM, and Mondays will be a no watering day for everyone. Along with helping to conserve water, you can also help decrease the pollutants in runoff water in our storm drains. If the water from driveways, sidewalks and streets carries pollutants such as oil, dirt, chemicals and lawn fertilizers, it can seriously harm water quality. Help prevent polluted runoff by properly using, storing and disposing of chemicals and lawn fertilizers. Our storm drains carry water into neighboring and distant waterways. Sweep sidewalks and driveways instead of using a hose, and use fertilizers sparingly.

For more information about the 2005 City of Los Banos Water Conservation Program, or Runoff Pollution Prevention, or to have your sprinkler timer programmed at no charge, please call The Public Works Department at (209) 827-7056

**USE WATER WISELY**

**ONLY RAIN DOWN THE DRAIN   SAVE A FISH!!!!**

(Script for radio ads  
run on local radio stations  
through the year 2008.)



# RESPECTING THE WATER CYCLE



This coloring and activities  
book belongs to .....

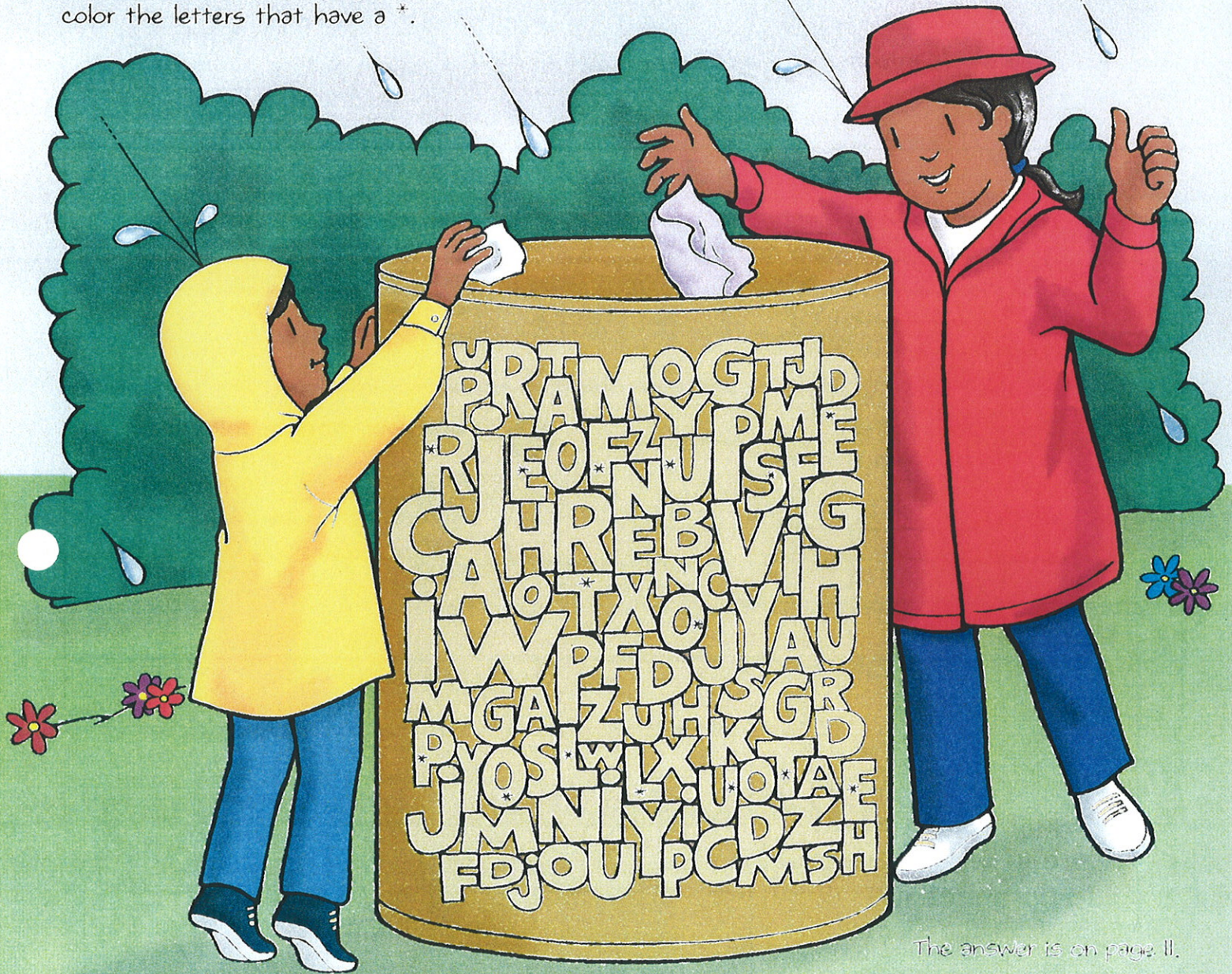
City of Los Banos  
Public Works Department  
411 Madison Avenue  
Los Banos, CA 93635  
(209) 827-7056



# THE WATER CYCLE IS IMPORTANT TO ALL OF US!

Never throw trash in the water or on the ground.

To read the secret message,  
color the letters that have a \*.



The answer is on page 11.






You can help keep our water cycle going strong!



100% Recycled Paper  
Printed on Recycled Paper



# Protect Our Water

-  Don't put pollutants or trash in the gutter or storm drain. Rainwater will wash them into streams, rivers, and lakes.
-  Limit use of fertilizers and pesticides.
-  Dispose of motor oil and hazardous materials wisely.
-  Don't water lawns and gardens in the heat of the day.
-  Don't leave water running unnecessarily.



**City of Los Banos  
Public Works Department  
411 Madison Avenue  
Los Banos, CA 93635**

**(209) 827-7056**

*Cop. of gift bag  
used for Water  
Awareness  
Classroom visits -  
3rd grade*





City of Los Banos  
Public Works Department  
*Only Rain Down the Drain!*  
*Save a Fish*

DIP IN WATER • SEE WHAT HAPPENS



## SAVE WATER INDOORS

### Doing Dishes

When you wash dishes by hand, use wash and rinse basins rather than running water. Soak pots and pans before washing. Use minimal detergent so you don't have to rinse as much. If you use a dishwasher, do only full loads and avoid extra cycles.

### Preparing Food

Thaw frozen food in your refrigerator, and wash foods in a basin of water, rather than using running water.

### Washing Up

Try a faucet aerator on your sink to reduce water use while maintaining flow. Take shallow baths. Keep showers short and use a low-flow showerhead. A flow restrictor lets you maintain the faucet setting and shut off water at the shower head while soaping or shampooing.

### The Toilet

Flush only when necessary. If your toilet is not a low-flow model, you can install a water-saving displacement device in the tank to reduce the amount of water needed to flush.

### Washing Clothes

Match your washer's water level to your load size. Repair any leaks from faucets, hose connections, or pipes.

## SAVE WATER OUTDOORS

### Driveways, Sidewalks, and Walkways

Instead of the hose, use a broom or leaf blower to remove dead leaves and other debris.

### Hoses

Repair all leaks and install a water-saving shutoff nozzle that can be adjusted to fit the task at hand.

### Lawns and Gardens

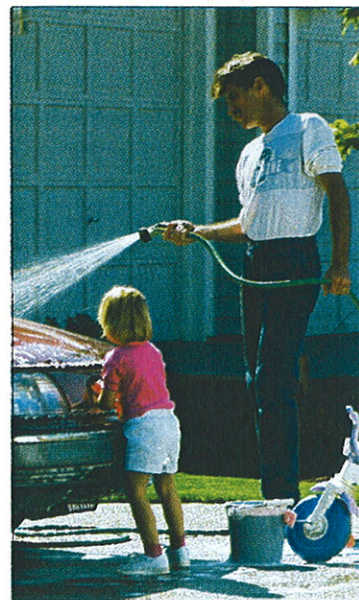
Water during the morning or evening to avoid excess evaporation. Use mulch around shrubs to save moisture. Use drought-tolerant and native plants.

### The Pool

Watch the water level to avoid unnecessary spillage and use a cover to prevent excess evaporation.

### The Car

Don't let the water run while washing your car. A shutoff nozzle on your hose will help.



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**Appendix H**  
**City of Los Banos Water Waste Ordinance**

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**City of Los Banos  
Municipal Code Section 6-7.28**

1. **Water/waste:** Lawn/landscape irrigation. No person shall allow water to run or waste from one's property onto a City street or right-of-way to such an extent that water shall flow in the street/gutter excessively beyond the frontage of the property occupied by such person; nor to flow excessively off the occupied property into the street/gutter; nor to continuously fall upon a public right-of-way or adjoining property such as to significantly contribute to the gutter flow; nor to excessively flow onto or continuously upon adjoining properties or an alley.
2. **Lawn/landscape irrigation** restricted to certain days and times. It shall be unlawful for any person to use City supplied water for irrigation of lawn, landscaping, et cetera, between the hours of 11:00 A.M. and 7:00 P.M., on any day of the week, beginning May 1, through and including September 30. Usage of water for the aforesaid purposes during allowable times shall be restricted to Sundays, Wednesdays, and Fridays of each week on the even numbered side of any street, and Tuesdays, Thursdays, and Saturdays of each week on the odd numbered side of any street. Watering shall be prohibited on Mondays. "Even-numbered side of any street" shall mean that side of this street on which the house numbers end in even figures. "Odd-numbered side of any street" shall mean that side of the street on which the house numbers end in odd figures.
3. New plantings, such as new lawns, ground coverings, or bedding plants may be watered every day between 7:00 P.M. and 11:00 A.M., providing the following conditions are met:
  - A. New lawns, ground coverings, or bedding plants shall not include reseeding of existing lawns or replacement of existing ground cover; or bedding plants, and
  - B. New lawns, ground coverings, and bedding plants shall be considered new for a period of one (1) year from planting date.



**CITY OF LOS BANOS**  
**DEPARTMENT OF PUBLIC WORKS**  
 411 MADISON AVENUE  
 LOS BANOS, CA 93635  
 TELEPHONE: 209.827-7056  
 FAX: 209.827-7069

|          |       |
|----------|-------|
| DATE:    | TIME: |
| ADDRESS: |       |

**YOU ARE IN VIOLATION OF LOS BANOS MUNICIPAL CODE  
SECTION 6-7.28 FOR THE FOLLOWING REASON(S):**

|    |                                     |
|----|-------------------------------------|
| 1. | WATERING DURING NON-PERMITTED DAY   |
| 2. | WATERING DURING NON-PERMITTED HOURS |
| 3. | EXCESSIVE WATERING                  |
| 4. | OTHER: (EXPLAIN)                    |

- FIRST OFFENSE: WARNING
- SECOND OFFENSE: \$15.00 PENALTY ADDED TO WATER BILL
- THIRD OFFENSE: 150% OF PREVIOUS PENALTY
- ADDITIONAL OFFENSES: 150% OF PREVIOUS PENALTY

SIGNED: \_\_\_\_\_

|                         |                 |
|-------------------------|-----------------|
| DATE:                   | TIME:           |
| ADDRESS:                |                 |
| VIOLATION: (CIRCLE ONE) |                 |
| 1                       | 2      3      4 |
| SIGNED: _____           |                 |



AECOM  
1360 E. Spruce Avenue  
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